

Sector 10. Plastic Colorant Producers and Users. Cost Factors. Ex. 35-390-53

Cost Factor =	Value*	Explanation
Instruments (10% of direct) =	10	meters and sensors
Freight (5% of direct) =	5	shipping
Installation (44% of direct) =	44	associated piping, electrical equipment, and materials
Startup and Contingency (31% of direct) =	31	spares, bonding, engineering, startup, shakedown, and contingency
Maintenance (5% of capital) =	5	replacement parts and labor
Inspection (1% of capital) =	1	inspection
Electricity Cost (\$0.04840/kwh) =	0.0484	Rolling 12-months ending in March; Average Revenue per Kilowatt-hour from Retain Sales to Ultimate Consumers (Industry). Electric Power Monthly June 2003. Energy Information Administration
Useful Life (10 years) =	10	payment period
Discount Rate (7%) =	7	interest rate
Annualized Factor For Initial Costs for Engineering Controls (14.24% of capital) =	14.24	based on useful life and discount rate
Annualized Factor For Engineering Controls Beginning End of Second Year (74.26% of capital) =	74.26	based on useful life and discount rate
Escalation Factor (1.038) =	1.038	Chemical Engineering Magazine Plant Cost Index or similar (current year/past year)

* The cost factor value can be edited and changes will be reflected in all industry sectors

Sector 10. Plastic Colorant Producers and Users. Unit Costs.

Cost Description	Base Cost	Escalation Factor	Unit Cost
Cost per hour for an outside industrial hygiene contractor	\$90.00	1	\$90.00
Cost of a personal sampling pump	\$680.00	1	\$680.00
Variable Cost per sample (e.g., laboratory analysis)	\$60.00	1	\$60.00
Flat Fee For Training Course	\$400.00	1	\$400.00
Cost of a calibration unit	\$1,075.00	1	\$1,075.00
Unit cost of OSHA-regulation warning signs with mounting materials	\$3.03	1.2702	\$3.84
Cost of materials per qualitative fit-testing	\$0.07	1	\$0.07
Unit cost per worker for an air-supplied respirator	\$1,473.33	1	\$1,473.33
Unit cost per employee for a full-face respirator	\$243.00	1	\$243.00
Unit cost per employee for a half-mask respirator	\$35.30	1	\$35.30
Cost of replacement cartridges (2 cartridges per mask)	\$13.74	1	\$13.74
Unit cost per employee for a blasting helmet air-supplied respirator	\$1,164.00	1	\$1,164.00
Cost of materials to clean one, respirator	\$1.86	1	\$1.86
Cost of PE coated Tyvek coveralls	\$6.60	1	\$6.60
Cost of Saranex coveralls	\$32.85	1	\$32.85
Cost of Tyvek coveralls	\$4.50	1	\$4.50
Cost of bib aprons	\$0.58	1	\$0.58
Cost of laundering uniforms for one employee per week	\$0.75	1	\$0.75
Cost of laundering lab coats for one employee per week	\$0.75	1	\$0.75
Cost of clear indirect vent goggles	\$6.00	1	\$6.00
Cost of clear lens safety glasses	\$5.00	1	\$5.00
Cost of grey lens safety glasses	\$5.00	1	\$5.00
Cost of lined nitrile gloves	\$2.50	1	\$2.50
Cost of powder surgical nitrile gloves	\$0.24	1	\$0.24
Cost of rough PVC gloves	\$4.10	1	\$4.10
Unit cost of change rooms per employee	\$856.00	1.4742	\$1,261.92
Cost per shower head	\$3,590.00	1.4742	\$5,292.39
Cost per handwashing facility	\$500.00	1	\$500.00
Variable cost per shower (soap, clean towel, water, etc.)	\$0.50	1	\$0.50
Variable cost per handwashing facility (roll paper towels, liquid soap, water)	\$0.06	1	\$0.06
Unit cost of HEPA vacuums	\$1,580.00	1.4742	\$2,329.24
Unit cost of HEPA vacuum replacement filters	\$212.00	1.4742	\$312.53
Unit cost of garbage bags and disposal	\$500.00	1	\$500.00
Full cost of a comprehensive medical exam	\$282.00	1.4211	\$400.76
Full cost of a limited medical exam	\$125.00	1.0000	\$125.00
Cost of additional medical testing after exam results are abnormal	\$150.00	1.4211	\$213.17
Cost of a partial comprehensive medical exam	\$141.00	1.4211	\$200.38
Cost of a partial limited medical exam	\$75.00	1.4211	\$106.59
Cost per employee for training aids and materials	\$2.00	1	\$2.00
Cost per employee for computer file space	\$1.00	1	\$1.00
Cost of medical history questionnaire	\$25	1.4211	\$35.53
Cost of a medical exam for respirator use	\$75	1.4211	\$106.58
Cost of mops and buckets	\$62.92	1	\$62.92
Cost of mops	\$2.90	1	\$2.90
Unit Cost of Cr(VI) hazard labels for glove disposal bags	\$0.32	1	\$0.32

Sector 10. Plastic Colorant Producers and Users. Wage Rates.

Section	Non-Supervisory Wage Rate (\$/hour)	Supervisor Wage Rate (\$/hour)	Clerical Wage Rate (\$/hour)	Janitorial Wage Rate (\$/hour)	Bilingual Trainer Wage Rate (\$/hour)
1	\$21.43	\$30.01	\$15.47	\$11.71	\$24.65
2	\$21.10	\$29.54	\$15.23	\$11.53	\$24.27
4	\$31.15	\$43.63	\$22.48	\$17.02	\$35.83
5	\$30.36	\$42.52	\$21.91	\$16.59	\$34.91
6	\$25.72	\$36.01	\$18.55	\$14.05	\$29.57
7	\$31.15	\$43.63	\$22.48	\$17.02	\$35.83
8	\$23.20	\$32.49	\$16.75	\$12.67	\$26.68
9	\$23.24	\$32.55	\$16.77	\$12.70	\$26.73
10	\$25.76	\$36.06	\$18.58	\$14.08	\$29.62
11	\$23.12	\$32.36	\$16.68	\$12.63	\$26.58
12	\$19.14	\$26.80	\$13.81	\$10.46	\$22.00
13	\$31.25	\$43.77	\$22.55	\$17.08	\$35.94
14	\$31.25	\$43.77	\$22.55	\$17.08	\$35.94
15	\$22.80	\$31.92	\$16.45	\$12.46	\$26.22
17	\$30.36	\$42.52	\$21.91	\$16.59	\$34.91
18	\$33.42	\$46.80	\$24.12	\$18.26	\$38.43
19	\$24.10	\$33.76	\$17.39	\$13.17	\$27.72
20	\$16.08	\$22.52	\$11.60	\$8.79	\$18.48
21	\$23.25	\$32.56	\$16.77	\$12.71	\$26.75
22	\$16.79	\$23.50	\$12.11	\$9.18	\$19.30
23	\$17.19	\$24.08	\$12.41	\$9.39	\$19.76
24	\$26.18	\$36.65	\$18.89	\$14.30	\$30.10
25	\$20.65	\$28.93	\$14.91	\$11.28	\$23.76
26	\$25.86	\$36.20	\$18.65	\$14.13	\$29.74
27	\$21.93	\$30.71	\$15.83	\$11.99	\$25.23
29	\$20.04	\$28.07	\$14.46	\$10.95	\$23.05
30	\$22.49	\$31.49	\$16.23	\$12.29	\$25.87
31	\$25.88	\$36.24	\$18.68	\$14.14	\$29.76
32	\$22.21	\$31.10	\$16.03	\$12.14	\$25.55

Sector 10. Plastic Colorant Producers and Users. Engineering Capital.

10. PLASTIC COLORANT PRODUCERS AND USERS	
Alternative PEL (ug/m ³)	20
Affected Job Category	None
Page	
Required Controls	No Engineering Controls
CAPITAL*	
Direct equipment (quoted)	\$0.00
+ Instruments (10% of direct)	\$0
+ Freight (5% of direct)	\$0
+ Installation (44% of direct)	\$0
+ Startup and Contingency (31% of direct)	\$0
Total Capital	\$0
ANNUALIZED	
O&M	
Maintenance (5% of capital)	\$0
+ Inspection (1% of capital)	\$0
+ Electricity	\$0
+ Electric motor HP	0
+ Annual Kwh	0
Total O&M	\$0
+ Annualized Initial Costs (14.24% of capital)	\$0
Total Annualized Cost	\$0
Rounded Total Annualized Cost	\$0
ASSUMPTIONS	
+ ACFM	
+ Length of ductwork, feet	
+ Room size	
+ Other	
DESIGN BASIS	

* Some vendors supplied cost for only the equipment while others supplied the cost for instruments, freight, installation, and indirect costs were as supplying costs for equipment and installation. For those cases where sensors; installation includes associated piping, and electrical equipment

Sources: (1) Luxme International Ltd., Montreal, Quebec [(717) 764-0321]

Sector 10. Plastic Colorant Producers and Users. Engineering Controls by PEL.

10. PLASTIC COLORANT PRODUCERS AND USERS	
Alternative PEL (ug/m ³)	20
Affected Job Category	None
Page	0
Required Controls	No Engineering Controls
LARGE PLANT COSTS	
Total Annualized Cost	\$0
Number of Large Plants	16
Number of Controls per Large Plant	1
Percentage of Large Plants with Workers > PEL	37.5%
Percentage of Large Plants without Control	37.5%
Total Number of Controls for Large Plants	6
Annualized Cost to Large Plants	\$0
SMALL PLANT COSTS	
Total Annualized Cost	\$0
Number of Small Plants	21
Number of Controls per Small Plant	1
Percentage of Small Plants with Workers > PEL	38%
Percentage of Small Plants without Control	38%
Total Number of Controls for Small Plants	8
Annualized Cost to Small Plants	\$0

Sector 10. Plastic Colorant Producers and Users. Exposure Profile.

Number of Affected Establishments	
Small Establishments (< 20 employees)	45
Large Establishments (> 20 employees)	92
Total Establishments	137

Number of Establishments in Industry Sector	
Number of Establishments < 20 employees	53,786
Number of Establishments 20 - 499 employees	726,182
Number of Establishments > 500 employees	157,567

Number of Employees Exposed to Hexavalent Chromium by Job Category in the

Plastic Colorant Producer and User Industry			
Job Category	Number of Employees in Large Facilities	Number of Employees in Small Facilities	Total Number of Employees
Dry Color Handler	303	45	348
Wet Mill Operator	30	0	30
Dry Color			
Blender/Packager	40	0	40
Production Supervisor	74	0	74
Total	447	45	492

Job Category	Total No. of Workers	Plastic Colorant Producer and User CrVI Worker Exposure Distribution (ug/m3)							
		<LOD	LOD to <0.25	>0.25 to 0.5	>0.5 to 1.0	>1.0 to 5.0	>5.0 to 10.0	>10.0 to 20.0	>20.0
Dry Color Handler	348	0	0	0	0	232	35	58	23
Wet Mill Operator	30	0	15	15	0	0	0	0	0
Dry Color									
Blender/Packager	40	0	0	0	0	18	1	6	15
Production Supervisor	74	37	0	0	0	0	0	0	37
Total	492	37	15	15	0	250	36	64	75

Job Category	Plastic Colorant Producer and User CrVI Worker Exposure Percentage Distribution (ug/m3)							
	<LOD	LOD to <0.25	>0.25 to 0.5	>0.5 to 1.0	>1.0 to 5.0	>5.0 to 10.0	>10.0 to 20.0	>20.0
Dry Color Handler	0%	0%	0%	0%	66.7%	10%	16.7%	6.7%
Wet Mill Operator	0%	50%	50%	0%	0%	0%	0%	0%
Dry Color								
Blender/Packager	0%	0%	0%	0%	44.2%	3.3%	15.6%	37.5%
Production Supervisor	0%	0%	50%	0%	0%	0%	0%	50%
Total	0%	10.6%	10.6%	0%	50.8%	7.3%	13.0%	15.2%

Job Category	Plastic Colorant Producer and User CrVI Worker Exposure Cumulative Percentage Distribution (ug/m3)					
	>0.25	>0.5	>1.0	>5.0	>10.0	>20.0
Dry Color Handler	100%	100%	100%	33.4%	23.4%	6.7%
Wet Mill Operator	50%	0%	0%	0%	0%	0%
Dry Color						
Blender/Packager	100%	100%	100%	56.4%	53.1%	37.5%
Production Supervisor	100%	50%	50%	50%	50%	50%
Total	96.9%	86.3%	86.3%	35.5%	28.2%	15.2%

Sector 10. Plastic Colorant Producers and Users. Engineering Capital Costs - Large Establishments.

Incremental Annualized Costs to Large Plastic Colorant Producer and User Establishments						
PEL (ug/m³)	0.25	0.5	1	5	10	20
No Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$0	\$0	\$0	\$0	\$0	\$0

Cumulative Annualized Costs to Large Plastic Colorant Producer and User Establishments						
PEL (ug/m³)	0.25	0.5	1	5	10	20
No Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$0	\$0	\$0	\$0	\$0	\$0

Sector 10. Plastic Colorant Producers and Users. Engineering Capital Costs - Small Establishments.

Incremental Annualized Costs to Small Plastic Colorant Producer and User Establishment						
PEL (ug/m³)	0.25	0.5	1	5	10	20
No Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$0	\$0	\$0	\$0	\$0	\$0

Cumulative Annualized Costs to Small Plastic Colorant Producer and User Establishments						
PEL (ug/m³)	0.25	0.5	1	5	10	20
No Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$0	\$0	\$0	\$0	\$0	\$0

Sector 10. Plastic Colorant Producers and Users. Exposure Monitoring Costs - Large Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS								
Cost of Exposure Monitoring to Large Establishments								
Alternative PEL (ug/m3)	N/A	Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	Affected Job Category	All	All	All	All	All	All
Required Controls	Exposure Monitoring	Required Controls	Exposure Monitoring	Exposure Monitoring	Exposure Monitoring	Exposure Monitoring	Exposure Monitoring	Exposure Monitoring
Capital		Annualized						
Number of plants represented by the model input	92	O&M						
Percent of Plants that will continue to use an outside contractor for monitoring	100%	Percent of plants not performing quarterly monitoring requirements	100%	100%	100%	100%	100%	100%
Percent of plants already with in-house monitoring capabilities	0%	Number of job categories exposed at or above the PEL	3	3	3	3	3	4
Percent of plants that have not satisfied the initial monitoring requirement	25%	Percent of plants that have an employees in at least on job category above the PEL	15%	28%	36%	86%	86%	97%
Percent of plants that will develop in house monitoring capability	0%	Time, in hours, for an outside contractor (industrial hygiene technician) to conduct quarterly-annual monitoring	12	12	12	12	12	12
Number of initial exposure measurements required to be satisfied with semi-annual monitoring requirements	2	Percent of plants not performing semi-annual monitoring requirements	100%	100%	100%	100%	100%	100%
Number of personal sampling pumps required	5	Number of job categories exposed at or above the action level	2	2	2	0	2	1
Number of samples per exposure measurement	3	Percent of plants that have an employees in at least on job category above the AL	13%	7%	51%	0%	11%	3%
In-house administrative time (e.g., for pump calibration and report writing) per sample, in hours	0.5	Time, in hours, for an outside contractor (industrial hygiene technician) to conduct semi annual monitoring	12	12	12	0	12	12
Cost per hour for an outside industrial hygiene contractor	\$90.00	Useful life, in years, of a personal sampling pump	10	10	10	10	10	10
Time, in hours, for an outside contractor (industrial hygiene technician) to conduct the initial monitoring	12	Annual O&M cost of a personal sampling pump as a percentage of capital cost (assumed to be 10% of capital cost)	10%	10%	10%	10%	10%	10%
Total number of job categories (covering each work area)	4	Cost of laboratory processing samples associated with quarterly monitoring	\$90,616	\$168,117	\$211,637	\$514,486	\$514,486	\$770,239
Non-supervisory wage rate, \$/hr	\$25.76	Administrative cost of associated with quarterly monitoring	\$0	\$0	\$0	\$0	\$0	\$0
Time, in hours, to notify an employee of the exposure monitoring results	0.25	Cost of outside contractor for quarterly monitoring	\$60,411	\$112,078	\$141,091	\$342,991	\$342,991	\$385,119
Cost of a personal sampling pump	\$680.00	Cost associated with notifying employees of quarterly monitoring results	\$23,341	\$43,304	\$54,514	\$132,523	\$132,523	\$198,401
Variable cost per sample (e.g., laboratory analysis)	\$60.00	Quarterly monitoring O&M cost	\$174,368	\$323,499	\$407,242	\$990,000	\$990,000	\$1,353,759
Number of work shifts	3	Cost of laboratory processing samples associated with semi-annual monitoring	\$25,834	\$14,507	\$100,950	\$0	\$21,064	\$2,981
Supervisory wage rate, \$/hr	\$36.06	Administrative cost of associated with semi-annual monitoring	\$0	\$0	\$0	\$0	\$0	\$0
Number of hours of training required to develop in-house monitoring capability	16	Cost of outside contractor for semi-annual monitoring	\$25,834	\$14,507	\$100,950	\$0	\$21,064	\$5,962
Flat fee for training course	\$400.00	Cost associated with notifying employees of semi-annual monitoring results	\$6,654	\$3,737	\$26,003	\$0	\$5,426	\$768
Number of calibration units required	1	Semi-annual monitoring O&M cost	\$58,322	\$32,750	\$227,902	\$0	\$47,554	\$9,710
Cost of a calibration unit	\$1,075.00	Total Annualized O&M Cost	\$232,690	\$356,249	\$635,145	\$990,000	\$1,037,554	\$1,363,469
Capital cost of exposure monitoring	\$0.00	+ Annualized Capital Cost	\$0	\$0	\$0	\$0	\$0	\$0
Up-front cost of exposure monitoring	\$251,413.92	Total Annualized Cost	\$232,690	\$356,249	\$635,145	\$990,000	\$1,037,554	\$1,363,469
		Rounded Annualized Cost	\$232,700	\$356,200	\$635,100	\$990,000	\$1,037,600	\$1,363,500

Sector 10. Plastic Colorant Producers and Users. Exposure Monitoring Costs - Small Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS								
Cost of Exposure Monitoring to Small Establishments								
Alternative PEL (ug/m3)	N/A	Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	Affected Job Category	All	All	All	All	All	All
Required Controls	Exposure Monitoring	Required Controls	Exposure Monitoring	Exposure Monitoring	Exposure Monitoring	Exposure Monitoring	Exposure Monitoring	Exposure Monitoring
Capital		Annualized						
Number of plants represented by the model input	45	O&M						
Percent of Plants that will continue to use an outside contractor for monitoring	100%	Percent of plants not performing quarterly monitoring requirements	100%	100%	100%	100%	100%	100%
Percent of plants already with in-house monitoring capabilities	0%	Number of job categories exposed at or above the PEL	5	5	5	5	5	5
Percent of plants that have not satisfied the initial monitoring requirement	25%	Percent of plants that have an employees in at least on job category above the PEL	15%	28%	36%	86%	86%	97%
Percent of plants that will develop in house monitoring capability	0%	Time, in hours, for an outside contractor (industrial hygiene technician) to conduct quarterly-annual monitoring	12	12	12	12	12	12
Number of initial exposure measurements required to be satisfied with semi-annual monitoring requirements	2	Percent of plants not performing semi-annual monitoring requirements	100%	100%	100%	100%	100%	100%
Number of personal sampling pumps required	3	Number of job categories exposed at or above the action level	2	2	2	0	2	1
Number of samples per exposure measurement	3	Percent of plants that have an employees in at least on job category above the AL	13%	7%	51%	0%	11%	3%
In-house administrative time (e.g., for pump calibration and report writing) per sample, in hours	1	Time, in hours, for an outside contractor (industrial hygiene technician) to conduct semi-annual monitoring	12	12	12	0	12	12
Cost per hour for an outside industrial hygiene contractor	\$90.00	Useful life, in years, of a personal sampling pump	10	10	10	10	10	10
Time, in hours, for an outside contractor (industrial hygiene technician) to conduct the initial monitoring	12	Annual O&M cost of a personal sampling pump as a percentage of capital cost (assumed to be 10% of capital cost)	10%	10%	10%	10%	10%	10%
Total number of job categories (covering each work area)	1	Cost of laboratory processing samples associated with quarterly monitoring	\$24,624	\$45,684	\$57,510	\$139,806	\$139,806	\$156,978
Non-supervisory wage rate, \$/hr	\$25.76	Administrative cost of associated with quarterly monitoring	\$0	\$0	\$0	\$0	\$0	\$0
Time, in hours, to notify an employee of the exposure monitoring results	0.25	Cost of outside contractor for quarterly monitoring	\$29,549	\$54,821	\$69,012	\$167,767	\$167,767	\$188,374
Cost of a personal sampling pump	\$680.00	Cost associated with notifying employees of quarterly monitoring results	\$6,343	\$11,767	\$14,814	\$36,012	\$36,012	\$40,435
Variable cost per sample (e.g., laboratory analysis)	\$60.00	Quarterly monitoring O&M cost	\$60,516	\$112,272	\$141,336	\$343,585	\$343,585	\$385,787
Number of work shifts	1	Cost of laboratory processing samples associated with semi-annual monitoring	\$4,212	\$2,365	\$16,459	\$0	\$3,434	\$486
Supervisory wage rate, \$/hr	\$36.06	Administrative cost of associated with semi-annual monitoring	\$0	\$0	\$0	\$0	\$0	\$0
Number of hours of training required to develop in-house monitoring capability	16	Cost of outside contractor for semi-annual monitoring	\$12,636	\$7,096	\$49,378	\$0	\$10,303	\$2,916
Flat fee for training course	\$400.00	Cost associated with notifying employees of semi-annual monitoring results	\$1,085	\$609	\$4,240	\$0	\$885	\$125
Number of calibration units required	1	Semi-annual monitoring O&M cost	\$17,933	\$10,070	\$70,076	\$0	\$14,622	\$3,527
Cost of a calibration unit	\$1,075.00	Total Annualized O&M Cost	\$78,448	\$122,342	\$211,412	\$343,585	\$358,207	\$389,314
Capital cost of exposure monitoring	\$0.00	+ Annualized Capital Cost	\$0	\$0	\$0	\$0	\$0	\$0
Up-front cost of exposure monitoring	\$32,522.85	Total Annualized Cost	\$78,448	\$122,342	\$211,412	\$343,585	\$358,207	\$389,314
		Rounded Annualized Cost	\$78,400	\$122,300	\$211,400	\$343,600	\$358,200	\$389,300

Sector 10. Plastic Colorant Producers and Users. Regulated Area Costs - Large Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Regulated Areas - Signs and Labels to Large Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Required Controls	Regulated Areas - Signs and Labels	Regulated Areas - Signs and Labels	Regulated Areas - Signs and Labels	Regulated Areas - Signs and Labels	Regulated Areas - Signs and Labels	Regulated Areas - Signs and Labels
Capital						
Number of plants represented by the model plant	92	92	92	92	92	92
Percent of plants requiring additional warning signs for regulated areas	15%	28%	36%	86%	86%	97%
Number of warning signs required for each regulated area	2	2	2	2	2	2
Number of job categories exposed above the PEL	3	3	3	3	3	4
Non-supervisory wage, \$/hr	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76
Unit cost of OSHA-regulation warning signs with mounting materials	\$3.84	\$3.84	\$3.84	\$3.84	\$3.84	\$3.84
Useful life, in years, of a warning sign	10	10	10	10	10	10
Time, in hours, to mount a warning sign	0.5	0.5	0.5	0.5	0.5	0.5
Total capital cost of regulated areas - signs and labels	\$1,403	\$2,603	\$3,277	\$7,966	\$7,966	\$11,926
Annualized O&M						
Total Annualized O&M Cost	\$0	\$0	\$0	\$0	\$0	\$0
+ Annualized Capital Cost	\$200	\$371	\$467	\$1,134	\$1,134	\$1,698
Total Annualized Cost	\$200	\$371	\$467	\$1,134	\$1,134	\$1,698
Rounded Annualized Cost	\$200	\$370	\$470	\$1,130	\$1,130	\$1,700

Sector 10. Plastic Colorant Producers and Users. Regulated Area Costs - Small Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Regulated Areas - Signs and Labels to Small Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Required Controls	Regulated Areas - Signs and Labels	Regulated Areas - Signs and Labels	Regulated Areas - Signs and Labels	Regulated Areas - Signs and Labels	Regulated Areas - Signs and Labels	Regulated Areas - Signs and Labels
Capital						
Number of plants represented by the model plant	45	45	45	45	45	45
Percent of plants requiring additional warning signs for regulated areas	15%	28%	36%	86%	86%	97%
Number of warning signs required for each regulated area	2	2	2	2	2	2
Number of job categories exposed above the PEL	5	5	5	5	5	5
Non-supervisory wage, \$/hr	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76
Unit cost of OSHA-regulation warning signs with mounting materials	\$3.84	\$3.84	\$3.84	\$3.84	\$3.84	\$3.84
Useful life, in years, of a warning sign	10	10	10	10	10	10
Time, in hours, to mount a warning sign	0.5	0.5	0.5	0.5	0.5	0.5
Total capital cost of regulated areas - signs and labels	\$1,144	\$2,122	\$2,671	\$6,494	\$6,494	\$7,292
Annualized O&M						
Total Annualized O&M Cost	\$0	\$0	\$0	\$0	\$0	\$0
+ Annualized Capital Cost	\$163	\$302	\$380	\$925	\$925	\$1,038
Total Annualized Cost	\$163	\$302	\$380	\$925	\$925	\$1,038
Rounded Annualized Cost	\$160	\$300	\$380	\$920	\$920	\$1,040

Sector 10. Plastic Colorant Producers and Users. Respirator Fit Testing Costs - Large Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Respirator Fit-Testing to Large Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	None	None	None	None	None	None
Required Controls	Respirator-Testing	Respirator-Testing	Respirator-Testing	Respirator-Testing	Respirator-Testing	Respirator-Testing
Capital						
Total capital cost of respirator fit-testing	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Annualized O&M						
Number of plants represented by the model plant	1	1	1	1	1	1
Percent of plants conducting annual respirator fit-testing in the baseline	46%	46%	46%	46%	46%	46%
Non-supervisory wage rate	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76
Number of employees requiring annual qualitative fit-testing	126	159	386	386	433	447
Cost of materials per qualitative fit-testing	\$0.07	\$0.07	\$0.07	\$0.07	\$0.07	\$0.07
Time, in hours, for a technician to conduct one qualitative fit-test	0.25	0.25	0.25	0.25	0.25	0.25
Time, in hours, for an employee to be qualitative fit-tested	0.25	0.25	0.25	0.25	0.25	0.25
Time, in hours, for an employee to be quantitative fit-tested	0.5	0.5	0.5	0.5	0.5	0.5
Number of employees requiring annual quantitative fit-testing	0	0	0	0	0	0
Cost of an industrial hygiene technician contractor per quantitative fit-test	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Number of employees who wear respirators for more than 5 hours/week and who are above the AL in the model plant ¹	126	159	386	386	433	447
Employee time to complete medical history questionnaire, in hours	0.17	0.17	0.17	0.17	0.17	0.17
Cost of medical history questionnaire	\$35.53	\$35.53	\$35.53	\$35.53	\$35.53	\$35.53
Employee time for medical exam for respirator use, in hours	3	3	3	3	3	3
Cost of a medical exam for respirator use	\$106.58	\$106.58	\$106.58	\$106.58	\$106.58	\$106.58
Percent of employees that will require a medical exam for respirator use	23%	23%	23%	23%	23%	23%
Total Annualized O&M Cost	\$6,518.74	\$8,206.21	\$19,949.18	\$19,949.18	\$22,399.49	\$23,116.09
+ Annualized Capital Cost	\$0	\$0	\$0	\$0	\$0	\$0
Total Annualized Cost	\$6,519	\$8,206	\$19,949	\$19,949	\$22,399	\$23,116
Rounded Annualized Cost	\$6,520	\$8,210	\$19,950	\$19,950	\$22,400	\$23,120

¹All employees above AL and PEL are required to fill out medical history questionnaire (cost not incurred under medical examinations because this industry has exposure to Cr(VI) for less than 30 days/year and therefore not required to have employees above PEL medically examined)

Sector 10. Plastic Colorant Producers and Users. Respirator Fit Testing Costs - Small Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Respirator Fit-Testing to Small Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	None	None	None	None	None	None
Required Controls	Respirator-Testing	Respirator-Testing	Respirator-Testing	Respirator-Testing	Respirator-Testing	Respirator-Testing
Capital						
Total capital cost of respirator fit-testing	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Annualized O&M						
Number of plants represented by the model plant	1	1	1	1	1	1
Percent of plants conducting annual respirator fit-testing in the baseline	5%	5%	5%	5%	5%	5%
Non-supervisory wage rate	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76
Number of employees requiring annual qualitative fit-testing	126	159	39	39	44	45
Cost of materials per qualitative fit-testing	\$0.07	\$0.07	\$0.07	\$0.07	\$0.07	\$0.07
Time, in hours, for a technician to conduct one qualitative fit-test	0.25	0.25	0.25	0.25	0.25	0.25
Time, in hours, for an employee to be qualitative fit-tested	0.25	0.25	0.25	0.25	0.25	0.25
Time, in hours, for an employee to be quantitative fit-tested	0.5	0.5	0.5	0.5	0.5	0.5
Number of employees requiring annual quantitative fit-testing	0	0	0	0	0	0
Cost of an industrial hygiene technician contractor per quantitative fit-test	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Number of employees who wear respirators for more than 5 hours/week and who are above the AL in the model plant ¹	126	159	39	39	44	45
Employee time to complete medical history questionnaire, in hours	0.17	0.17	0.17	0.17	0.17	0.17
Cost of medical history questionnaire	\$35.53	\$35.53	\$35.53	\$35.53	\$35.53	\$35.53
Employee time for medical exam for respirator use, in hours	3	3	3	3	3	3
Cost of a medical exam for respirator use	\$106.58	\$106.58	\$106.58	\$106.58	\$106.58	\$106.58
Percent of employees that will require a medical exam for respirator use	23%	23%	23%	23%	23%	23%
Total Annualized O&M Cost	\$11,407.79	\$14,360.87	\$3,514.54	\$3,514.54	\$3,946.22	\$4,072.47
+ Annualized Capital Cost	\$0	\$0	\$0	\$0	\$0	\$0
Total Annualized Cost	\$11,408	\$14,361	\$3,515	\$3,515	\$3,946	\$4,072
Rounded Annualized Cost	\$11,410	\$14,360	\$3,510	\$3,510	\$3,950	\$4,070

¹All employees above AL and PEL are required to fill out medical history questionnaire (cost not incurred under medical examinations because this industry has exposure to Cr(VI) for less than 30 days/year and therefore not required to have employees above PEL medically examined)

Sector 10. Plastic Colorant Producers and Users. Respirator Protection Costs - Large Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Respirator Protection for Large Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	None	None	None	None	None	None
Required Controls	Respirator Protection	Respirator Protection	Respirator Protection	Respirator Protection	Respirator Protection	Respirator Protection
Capital						
Number of plants represented by the model plant	1	1	1	1	1	1
Percent of the workers using air-supplied respirators	3%	3%	3%	3%	3%	3%
Percent of the workers using full-face respirators	5%	5%	5%	5%	5%	5%
Percent of the workers using half-mask respirators	2%	2%	2%	2%	2%	2%
Percent of the workers using blasting helmet air-supplied respirators	0%	0%	0%	0%	0%	0%
Unit cost per worker for an air-supplied respirator	\$1,473.33	\$1,473.33	\$1,473.33	\$1,473.33	\$1,473.33	\$1,473.33
Number of workers requiring air-supplied respirators because above PEL	0	0	0	0	0	0
Number of workers requiring air-supplied respirators because above AL	0	0	0	0	0	0
Unit cost per employee for a full-face respirator	\$243.00	\$243.00	\$243.00	\$243.00	\$243.00	\$243.00
Number of workers requiring full-face respirators because above PEL	0	0	0	68	126	159
Number of workers requiring full-face respirators because above AL	0	0	0	0	0	0
Unit cost per employee for a half-mask respirator	\$35.30	\$35.30	\$35.30	\$35.30	\$35.30	\$35.30
Number of workers requiring half-mask respirators because above PEL	68	126	159	318	260	274
Number of workers requiring half-mask respirators because above AL	58	33	227	0	47	14
Unit cost per employee for a blasting helmet air-supplied respirator	\$1,164.00	\$1,164.00	\$1,164.00	\$1,164.00	\$1,164.00	\$1,164.00
Number of workers requiring blasting helmet air-supplied respirators above PEL	0	0	0	0	0	0
Number of workers requiring blasting helmet air-supplied respirators above AL	0	0	0	0	0	0
Total capital cost for respirators	\$4,342.91	\$5,467.14	\$13,290.55	\$26,684.09	\$39,771.54	\$46,681.37
Annualized						
O&M						
Number of shifts per day	3	3	3	3	3	3
Number of operating days per year	30	30	30	30	30	30
Number of days a respirator filter cartridge may be in use before it must be changed	2	2	2	2	2	2
Cost of replacement cartridges (2 cartridges per mask)	\$13.74	\$13.74	\$13.74	\$13.74	\$13.74	\$13.74
Useful life, in years, for an air-supplied respirator	10	10	10	10	10	10
Useful life, in years, for a full-face respirator	10	10	10	10	10	10
Useful life, in years, for a half-mask respirator	10	10	10	10	10	10
Useful life, in years, of a blasting helmet air-supplied respirator	10	10	10	10	10	10
Non-supervisory wage rate, \$/hour	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76
Cost of materials to clean one respirator	\$1.86	\$1.86	\$1.86	\$1.86	\$1.86	\$1.86
Time, in hours, for an employee to clean a respirator	0.167	0.167	0.167	0.167	0.167	0.167
Number of operating days per year that employees above the AL must wear respirators because of process upsets	20	20	20	20	20	20
Total Annualized O&M Cost	\$79,124	\$109,624	\$229,967	\$284,917	\$307,329	\$325,324
+ Annualized capital cost of respirator protection	\$618	\$779	\$1,893	\$3,800	\$5,663	\$6,647
Total Annualized Cost	\$79,742	\$110,402	\$231,859	\$288,717	\$312,992	\$331,971
Rounded Annualized Cost	\$79,742	\$110,402	\$231,859	\$288,717	\$312,992	\$331,971

Sector 10. Plastic Colorant Producers and Users. Respirator Protection Costs - Small Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Respirator Protection for Small Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	None	None	None	None	None	None
Required Controls	Respirator Protection	Respirator Protection	Respirator Protection	Respirator Protection	Respirator Protection	Respirator Protection
Capital						
Number of plants represented by the model plant	1	1	1	1	1	1
Percent of the workers using air-supplied respirators	2%	2%	2%	2%	2%	2%
Percent of the workers using full-face respirators	3%	3%	3%	3%	3%	3%
Percent of the workers using half-mask respirators	2%	2%	2%	2%	2%	2%
Percent of the workers using blasting helmet air-supplied respirators	0%	0%	0%	0%	0%	0%
Unit cost per worker for an air-supplied respirator	\$1,473.33	\$1,473.33	\$1,473.33	\$1,473.33	\$1,473.33	\$1,473.33
Number of workers requiring air-supplied respirators because above PEL	0	0	0	0	0	0
Number of workers requiring air-supplied respirators because above AL	0	0	0	0	0	0
Unit cost per employee for a full-face respirator	\$243.00	\$243.00	\$243.00	\$243.00	\$243.00	\$243.00
Number of workers requiring full-face respirators because above PEL	0	0	0	7	13	16
Number of workers requiring full-face respirators because above AL	0	0	0	0	0	0
Unit cost per employee for a half-mask respirator	\$35.30	\$35.30	\$35.30	\$35.30	\$35.30	\$35.30
Number of workers requiring half-mask respirators because above PEL	7	13	16	32	26	28
Number of workers requiring half-mask respirators because above AL	6	3	23	0	5	1
Unit cost per employee for a blasting helmet air-supplied respirator	\$1,164.00	\$1,164.00	\$1,164.00	\$1,164.00	\$1,164.00	\$1,164.00
Number of workers requiring blasting helmet air-supplied respirators above PEL	0	0	0	0	0	0
Number of workers requiring blasting helmet air-supplied respirators above AL	0	0	0	0	0	0
Total capital cost for respirators	\$441.24	\$555.46	\$1,350.31	\$2,726.40	\$4,069.17	\$4,778.56
Annualized O&M						
Number of shifts per day	1	1	1	1	1	1
Number of operating days per year	30	30	30	30	30	30
Number of days a respirator filter cartridge may be in use before it must be changed	2	2	2	2	2	2
Cost of replacement cartridges (2 cartridges per mask)	\$13.74	\$13.74	\$13.74	\$13.74	\$13.74	\$13.74
Useful life, in years, for an air-supplied respirator	10	10	10	10	10	10
Useful life, in years, for a full-face respirator	10	10	10	10	10	10
Useful life, in years, for a half-mask respirator	10	10	10	10	10	10
Useful life, in years, of a blasting helmet air-supplied respirator	10	10	10	10	10	10
Non-supervisory wage rate, \$/hour	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76
Cost of materials to clean one respirator	\$1.86	\$1.86	\$1.86	\$1.86	\$1.86	\$1.86
Time, in hours, for an employee to clean a respirator	0.167	0.167	0.167	0.167	0.167	0.167
Number of operating days per year that employees above the AL must wear respirators because of process upsets	20	20	20	20	20	20
Total Annualized O&M Cost	\$4,133	\$5,726	\$12,013	\$14,908	\$16,100	\$17,051
+ Annualized capital cost of respirator protection	\$63	\$79	\$192	\$388	\$579	\$680
Total Annualized Cost	\$4,196	\$5,806	\$12,205	\$15,296	\$16,679	\$17,732
Rounded Annualized Cost	\$4,196	\$5,806	\$12,205	\$15,296	\$16,679	\$17,732

Sector 10. Plastic Colorant Producers and Users. PPE Costs - Large Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Personal Protective Equipment for Large Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Required Controls	Personal Protective Clothing and Equipment	Personal Protective Clothing and Equipment	Personal Protective Clothing and Equipment	Personal Protective Clothing and Equipment	Personal Protective Clothing and Equipment	Personal Protective Clothing and Equipment
Capital						
Total capital cost of personal protective clothing and equipment	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Annualized O&M						
Number of plants represented by the model plant	92	92	92	92	92	92
Percentage of plants in the baseline that supplied coveralls or aprons	70%	70%	70%	70%	70%	70%
Percentage of plants in the baseline that supply eye protection	63%	63%	63%	63%	63%	63%
Percentage of plants in the baseline that supply gloves	70%	70%	70%	70%	70%	70%
Percentage of employers that will pay for coveralls or aprons according to industry practice under proposed standard	88.1%	88.1%	88.1%	88.1%	88.1%	88.1%
Percentage of employers that will pay for eye protection according to industry practice under proposed standard	91.9%	91.9%	91.9%	91.9%	91.9%	91.9%
Percentage of employers that will pay for gloves according to industry practice under proposed standard	88.1%	88.1%	88.1%	88.1%	88.1%	88.1%
Type of protective clothing required (PE coated Tyvek coveralls, Saranex coveralls, Tyvek coveralls, bib aprons or none)	uniforms	uniforms	uniforms	uniforms	uniforms	uniforms
The unit cost for coveralls or aprons ¹	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
The annual number of replacements for coveralls or aprons ¹	0	0	0	0	0	0
Total number of PPE laundered per year	583	583	583	583	583	487
Unit cost of laundering one article of PPE	\$0.75	\$0.75	\$0.75	\$0.75	\$0.75	\$0.75
Total Number of employees at the plant with the potential for dermal exposure	5	5	5	5	5	4
Type of protective eyewear required (clear indirect vent goggles, clear lens safety glasses, grey lens safety glasses or none)	clear lens safety glasses	clear lens safety glasses	clear lens safety glasses	clear lens safety glasses	clear lens safety glasses	clear lens safety glasses
Unit cost of eye protection	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
Number of replacement during the year for eye protection	19	19	19	19	19	16
Type of gloves required (lined nitrile, powder surgical nitrile, rough PVC, none)	powder surgical nitrile	powder surgical nitrile	powder surgical nitrile	powder surgical nitrile	powder surgical nitrile	powder surgical nitrile
The unit cost for gloves	\$0.24	\$0.24	\$0.24	\$0.24	\$0.24	\$0.24
Number of replacements during the year from gloves	583	583	583	583	583	487
Unit Cost of Cr(VI) hazard labels for glove disposal bags	\$0.32	\$0.32	\$0.32	\$0.32	\$0.32	\$0.32
Employee time to dispose of a pair of gloves in labeled container, in minutes	1	1	1	1	1	1
Total Annualized O&M Cost for establishments that do not supply protective work clothing and equipment in the baseline	\$26,392	\$26,392	\$26,392	\$26,392	\$26,392	\$22,022
Total Annualized O&M Cost for establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$4,856	\$4,856	\$4,856	\$4,856	\$4,856	\$4,052
Total Annualized O&M Cost for protective work clothing and equipment	\$31,247	\$31,247	\$31,247	\$31,247	\$31,247	\$26,074
Total Annualized Cost	\$31,247	\$31,247	\$31,247	\$31,247	\$31,247	\$26,074
Rounded Annualized Cost	\$31,250	\$31,250	\$31,250	\$31,250	\$31,250	\$26,070

¹ The unit cost of replacement for coveralls or aprons and the annual number of replacements for coveralls or aprons is zero because the unit cost of laundering

Sector 10. Plastic Colorant Producers and Users. PPE Costs - Small Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Personal Protective Equipment for Small Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Required Controls	Personal Protective Clothing and Equipment	Personal Protective Clothing and Equipment	Personal Protective Clothing and Equipment	Personal Protective Clothing and Equipment	Personal Protective Clothing and Equipment	Personal Protective Clothing and Equipment
Capital						
Total capital cost of personal protective clothing and equipment	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Annualized O&M						
Number of plants represented by the model plant	45	45	45	45	45	45
Percentage of plants in the baseline that supplied coveralls or aprons	46%	46%	46%	46%	46%	46%
Percentage of plants in the baseline that supply eye protection	45%	45%	45%	45%	45%	45%
Percentage of plants in the baseline that supply gloves	46%	46%	46%	46%	46%	46%
Percentage of employers that will pay for coveralls or aprons according to industry practice under proposed standard	88.1%	88.1%	88.1%	88.1%	88.1%	88.1%
Percentage of employers that will pay for eye protection according to industry practice under proposed standard	91.9%	91.9%	91.9%	91.9%	91.9%	91.9%
Percentage of employers that will pay for gloves according to industry practice under proposed standard	88.1%	88.1%	88.1%	88.1%	88.1%	88.1%
Type of protective clothing required (PE coated Tyvek coveralls, Saranex coveralls, Tyvek coveralls, bib aprons or none)	uniforms	uniforms	uniforms	uniforms	uniforms	uniforms
The unit cost for coveralls or aprons ¹	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
The annual number of replacements for coveralls or aprons ¹	0	0	0	0	0	0
Total number of PPE laundered per year	120	120	120	120	120	120
Unit cost of laundering one article of PPE	\$0.75	\$0.75	\$0.75	\$0.75	\$0.75	\$0.75
Total Number of employees at the plant with the potential for dermal exposure	1	1	1	1	1	1
Type of protective eyewear required (clear indirect vent goggles, clear lens safety glasses, grey lens safety glasses or none)	clear lens safety glasses	clear lens safety glasses	clear lens safety glasses	clear lens safety glasses	clear lens safety glasses	clear lens safety glasses
Unit cost of eye protection	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
Number of replacement during the year for eye protection	4	4	4	4	4	4
Type of gloves required (lined nitrile, powder surgical nitrile, rough PVC, none)	powder surgical nitrile	powder surgical nitrile	powder surgical nitrile	powder surgical nitrile	powder surgical nitrile	powder surgical nitrile
The unit cost for gloves	\$0.24	\$0.24	\$0.24	\$0.24	\$0.24	\$0.24
Number of replacements during the year from gloves	120	120	120	120	120	120
Unit Cost of Cr(VI) hazard labels for glove disposal bags	\$0.32	\$0.32	\$0.32	\$0.32	\$0.32	\$0.32
Employee time to dispose of a pair of gloves in labeled container, in minutes	1	1	1	1	1	1
Total Annualized O&M Cost for establishments that do not supply protective work clothing and equipment in the baseline	\$4,639	\$4,639	\$4,639	\$4,639	\$4,639	\$4,639
Total Annualized O&M Cost for establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$324	\$324	\$324	\$324	\$324	\$324
Total Annualized O&M Cost for protective work clothing and equipment	\$4,963	\$4,963	\$4,963	\$4,963	\$4,963	\$4,963
Total Annualized Cost	\$4,963	\$4,963	\$4,963	\$4,963	\$4,963	\$4,963
Rounded Annualized Cost	\$4,960	\$4,960	\$4,960	\$4,960	\$4,960	\$4,960

¹ The unit cost of replacement for coveralls or aprons and the annual number of replacements for coveralls or aprons is zero because the unit cost of laundering

Sector 10. Plastic Colorant Producers and Users. Hygiene Areas and Practices Costs - Large Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Hygiene Areas and Practices for Large Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Required Controls	Hygiene Areas and Practices	Hygiene Areas and Practices	Hygiene Areas and Practices	Hygiene Areas and Practices	Hygiene Areas and Practices	Hygiene Areas and Practices
Capital						
Number of plants represented by the model plant	92	92	92	92	92	92
Percent of plants requiring additional change rooms	30%	30%	30%	30%	30%	30%
Percent of plants requiring additional handwashing facilities	30%	30%	30%	30%	30%	30%
Percent of plants that require additional showers and employee showering	30%	30%	30%	30%	30%	30%
Number of additional shower heads needed	2	2	2	2	2	2
Total number of employees at the plant with dermal exposure	5	5	5	5	5	4
Number of work shifts	3	3	3	3	3	3
Cost per shower head	\$5,292.39	\$5,292.39	\$5,292.39	\$5,292.39	\$5,292.39	\$5,292.39
Cost per handwashing facility	\$500.00	\$500.00	\$500.00	\$500.00	\$500.00	\$500.00
Number of handwashing facilities needed	1	1	1	1	1	1
Unit cost of change room per employee	\$1,261.92	\$1,261.92	\$1,261.92	\$1,261.92	\$1,261.92	\$1,261.92
Capital cost if install showers	\$292,140	\$292,140	\$292,140	\$292,140	\$292,140	\$292,140
Capital cost if install handwashing facilities	\$13,800	\$13,800	\$13,800	\$13,800	\$13,800	\$13,800
Capital cost of change rooms	\$56,408	\$56,408	\$56,408	\$56,408	\$56,408	\$47,070
Annualized						
O&M						
Useful life, in years, of change rooms	10	10	10	10	10	10
Useful life, in years, of handwashing facilities	10	10	10	10	10	10
Number of operating days per year	30	30	30	30	30	30
Daily janitorial and maintenance time, in minutes, per shower head	1	1	1	1	1	1
Janitorial wage rate, \$/hr	\$14.08	\$14.08	\$14.08	\$14.08	\$14.08	\$14.08
Non-supervisory wage rate, \$/hr	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76
Useful life, in years, of showers	10	10	10	10	10	10
Time, in minutes, to shower	7.50	7.50	7.50	7.50	7.50	7.50
Variable cost per shower (soap, clean towel, water, etc.)	\$0.50	\$0.50	\$0.50	\$0.50	\$0.50	\$0.50
Total Annualized O&M Cost if install showers and change rooms	\$15,354	\$15,354	\$15,354	\$15,354	\$15,354	\$12,877
+ Annualized capital cost if install showers	\$41,601	\$41,601	\$41,601	\$41,601	\$41,601	\$41,601
+Annualized Capital cost if install changerooms at end of first year	\$6,963	\$6,963	\$6,963	\$6,963	\$6,963	\$5,810
Total Annualized Cost if install showers and change rooms	\$63,917	\$63,917	\$63,917	\$63,917	\$63,917	\$60,287
Rounded Annualized Cost if install showers and change rooms	\$63,900	\$63,900	\$63,900	\$63,900	\$63,900	\$60,300
Janitorial time to clean one handwashing facility, in minutes	10	10	10	10	10	10
Variable cost per handwashing facility (roll paper towels, liquid soap, water)	\$0.06	\$0.06	\$0.06	\$0.06	\$0.06	\$0.06
Total Annualized O&M cost if install handwashing facilities and change rooms	\$2,184	\$2,184	\$2,184	\$2,184	\$2,184	\$2,144
+ Annualized capital cost if install handwashing facilities and changerooms	\$1,965	\$1,965	\$1,965	\$1,965	\$1,965	\$1,965
+Annualized Capital cost if install changerooms at end of first year	\$6,963	\$6,963	\$6,963	\$6,963	\$6,963	\$5,810
Total Annualized Cost if install handwashing facilities and change rooms	\$11,112	\$11,112	\$11,112	\$11,112	\$11,112	\$9,919
Rounded Annualized cost if install handwashing facilities and change rooms	\$11,100	\$11,100	\$11,100	\$11,100	\$11,100	\$9,900

Sector 10. Plastic Colorant Producers and Users. Hygiene Areas and Practices Costs - Small Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Hygiene Areas and Practices for Small Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Required Controls	Hygiene Areas and Practices	Hygiene Areas and Practices	Hygiene Areas and Practices	Hygiene Areas and Practices	Hygiene Areas and Practices	Hygiene Areas and Practices
Capital						
Number of plants represented by the model plant	45	45	45	45	45	45
Percent of plants requiring additional change rooms	55%	55%	55%	55%	55%	55%
Percent of plants requiring additional handwashing facilities	55%	55%	55%	55%	55%	55%
Percent of plants that require additional showers and employee showering	55%	55%	55%	55%	55%	55%
Number of additional shower heads needed	2	2	2	2	2	2
Total number of employees at the plant with dermal exposure	5	5	5	5	5	4
Number of work shifts	1	1	1	1	1	1
Cost per shower head	\$5,292.39	\$5,292.39	\$5,292.39	\$5,292.39	\$5,292.39	\$5,292.39
Cost per handwashing facility	\$500.00	\$500.00	\$500.00	\$500.00	\$500.00	\$500.00
Number of additional handwashing facilities needed	1	1	1	1	1	1
Unit cost of change room per employee	\$1,261.92	\$1,261.92	\$1,261.92	\$1,261.92	\$1,261.92	\$1,261.92
Capital cost if install showers	\$261,973	\$261,973	\$261,973	\$261,973	\$261,973	\$261,973
Capital cost if install handwashing facilities	\$12,375	\$12,375	\$12,375	\$12,375	\$12,375	\$12,375
Capital cost of change rooms	\$151,749	\$151,749	\$151,749	\$151,749	\$151,749	\$126,627
Annualized O&M						
Useful life, in years, of change rooms	10	10	10	10	10	10
Useful life, in years, of handwashing facilities	10	10	10	10	10	10
Number of operating days per year	30	30	30	30	30	30
Daily janitorial and maintenance time, in minutes, per shower head	1	1	1	1	1	1
Janitorial wage rate, \$/hr	\$14.08	\$14.08	\$14.08	\$14.08	\$14.08	\$14.08
Non-supervisory wage rate, \$/hr	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76
Useful life, in years, of showers	10	10	10	10	10	10
Time, in minutes, to shower	7.50	7.50	7.50	7.50	7.50	7.50
Variable cost per shower (soap, clean towel, water, etc.)	\$0.50	\$0.50	\$0.50	\$0.50	\$0.50	\$0.50
Total Annualized O&M Cost if install showers and change rooms	\$13,769	\$13,769	\$13,769	\$13,769	\$13,769	\$11,547
+ Annualized capital cost if install showers	\$37,305	\$37,305	\$37,305	\$37,305	\$37,305	\$37,305
+ Annualized Capital cost if install changerooms at end of first year	\$18,731	\$18,731	\$18,731	\$18,731	\$18,731	\$15,630
Total Annualized Cost if install showers and change rooms	\$69,804	\$69,804	\$69,804	\$69,804	\$69,804	\$64,482
Rounded Annualized Cost if install showers and change rooms	\$69,800	\$69,800	\$69,800	\$69,800	\$69,800	\$64,500
Janitorial time to clean one handwashing facility, in minutes	10	10	10	10	10	10
Variable cost per handwashing facility (roll paper towels, liquid soap, water)	\$0.06	\$0.06	\$0.06	\$0.06	\$0.06	\$0.06
Total Annualized O&M cost if install handwashing facilities and change rooms	\$1,959	\$1,959	\$1,959	\$1,959	\$1,959	\$1,923
+ Annualized capital cost if install handwashing facilities and changerooms	\$1,762	\$1,762	\$1,762	\$1,762	\$1,762	\$1,762
+ Annualized Capital cost if install changerooms at end of first year	\$18,731	\$18,731	\$18,731	\$18,731	\$18,731	\$15,630
Total Annualized Cost if install handwashing facilities and change rooms	\$22,452	\$22,452	\$22,452	\$22,452	\$22,452	\$19,315
Rounded Annualized Cost if install handwashing facilities and change rooms	\$22,500	\$22,500	\$22,500	\$22,500	\$22,500	\$19,300

Sector 10. Plastic Colorant Producers and Users. Housekeeping Costs - Large Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Housekeeping for Large Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Required Controls	Housekeeping - Additional Control Using Wet or HEPA Vacuums and Garbage Bags	Housekeeping - Additional Control Using Wet or HEPA Vacuums and Garbage Bags	Housekeeping - Additional Control Using Wet or HEPA Vacuums and Garbage Bags	Housekeeping - Additional Control Using Wet or HEPA Vacuums and Garbage Bags	Housekeeping - Additional Control Using Wet or HEPA Vacuums and Garbage Bags	Housekeeping - Additional Control Using Wet or HEPA Vacuums and Garbage Bags
Capital						
Number of plants represented by the model plant	92	92	92	92	92	92
Number of plants requiring new HEPA vacuums	5	5	5	5	5	5
Unit cost of HEPA vacuums	\$2,329.24	\$2,329.24	\$2,329.24	\$2,329.24	\$2,329.24	\$2,329.24
Number of additional HEPA vacuums required	1	1	1	1	1	1
Number of plants requiring new mops and buckets	16	16	16	16	16	16
Number of additional mops and buckets required	5	5	5	5	5	5
Unit cost of mops and buckets	\$62.92	\$62.92	\$62.92	\$62.92	\$62.92	\$62.92
Total capital cost of housekeeping	\$17,183	\$17,183	\$17,183	\$17,183	\$17,183	\$17,183
Annualized O&M						
Number of plants represented by the model plant	92	92	92	92	92	92
Number of plants requiring new HEPA vacuums	5	5	5	5	5	5
Number of additional HEPA vacuums required	1	1	1	1	1	1
Annual number of replacement filters per HEPA vacuum	2	2	2	2	2	2
Unit cost of HEPA vacuum replacement filters	\$312.53	\$312.53	\$312.53	\$312.53	\$312.53	\$312.53
Useful life, in years, of a HEPA vacuum	10	10	10	10	10	10
Annual O&M cost of HEPA vacuums as a percentage of capital cost (assumes 5% of capital)	\$859.17	\$859.17	\$859.17	\$859.17	\$859.17	\$859.17
Number of plants requiring new mops and buckets	16	16	16	16	16	16
Number of additional mops required	5	5	5	5	5	5
Cost of mops	\$2.90	\$2.90	\$2.90	\$2.90	\$2.90	\$2.90
Number of wet spills per day	1	1	1	1	1	1
Cost of water per spill	\$0.0096	\$0.0096	\$0.0096	\$0.0096	\$0.0096	\$0.0096
Janitorial Time to cleanup spill (hours)	0.25	0.25	0.25	0.25	0.25	0.25
Percent of plants not disposing of chromium under RCRA	0%	0%	0%	0%	0%	0%
Number of additional garbage bags required per establishment per year	30	30	30	30	30	30
Unit cost of garbage bags and disposal	\$500.00	\$500.00	\$500.00	\$500.00	\$500.00	\$500.00
Number of operating days per year	30	30	30	30	30	30
Janitorial time, in hours per day, to HEPA vacuum Cr(VI) spills	0.5	0.5	0.5	0.5	0.5	0.5
Janitorial wage rate, \$/hour	\$14.08	\$14.08	\$14.08	\$14.08	\$14.08	\$14.08
Total Annualized O&M Cost	\$7,146	\$7,146	\$7,146	\$7,146	\$7,146	\$7,146
+ Annualized Capital Cost	\$2,447	\$2,447	\$2,447	\$2,447	\$2,447	\$2,447
Total Annualized Cost	\$9,593	\$9,593	\$9,593	\$9,593	\$9,593	\$9,593
Rounded Annualized Cost	\$9,590	\$9,590	\$9,590	\$9,590	\$9,590	\$9,590

Sector 10. Plastic Colorant Producers and Users. Housekeeping Costs - Small Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Housekeeping for Small Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Required Controls	Housekeeping - Additional Control Using Wet or HEPA Vacuums and Garbage Bags	Housekeeping - Additional Control Using Wet or HEPA Vacuums and Garbage Bags	Housekeeping - Additional Control Using Wet or HEPA Vacuums and Garbage Bags	Housekeeping - Additional Control Using Wet or HEPA Vacuums and Garbage Bags	Housekeeping - Additional Control Using Wet or HEPA Vacuums and Garbage Bags	Housekeeping - Additional Control Using Wet or HEPA Vacuums and Garbage Bags
Capital						
Number of plants represented by the model plant	45	45	45	45	45	45
Number of plants requiring new HEPA vacuums	7	7	7	7	7	7
Unit cost of HEPA vacuums	\$2,329.24	\$2,329.24	\$2,329.24	\$2,329.24	\$2,329.24	\$2,329.24
Number of additional HEPA vacuums required	1	1	1	1	1	1
Number of plants requiring new mops and buckets	20	20	20	20	20	20
Number of additional mops and buckets required	3	3	3	3	3	3
Unit cost of mops and buckets	\$63	\$63	\$63	\$63	\$63	\$63
Total capital cost of housekeeping	\$19,545	\$19,545	\$19,545	\$19,545	\$19,545	\$19,545
Annualized O&M						
Number of plants represented by the model plant	45	45	45	45	45	45
Number of plants requiring new HEPA vacuums	7	7	7	7	7	7
Number of additional HEPA vacuums required	1	1	1	1	1	1
Annual number of replacement filters per HEPA vacuum	2	2	2	2	2	2
Unit cost of HEPA vacuum replacement filters	\$312.53	\$312.53	\$312.53	\$312.53	\$312.53	\$312.53
Useful life, in years, of a HEPA vacuum	10	10	10	10	10	10
Annual O&M cost of HEPA vacuums as a percentage of capital cost (assumes 5% of capital)	\$977.24	\$977.24	\$977.24	\$977.24	\$977.24	\$977.24
Number of plants requiring new mops and buckets	20	20	20	20	20	20
Number of additional mops and buckets required	3	3	3	3	3	3
Cost of mops	\$2.90	\$2.90	\$2.90	\$2.90	\$2.90	\$2.90
Number of wet spills per day	1	1	1	1	1	1
Cost of water per spill	\$0.0096	\$0.0096	\$0.0096	\$0.0096	\$0.0096	\$0.0096
Janitorial Time to cleanup spill (hours)	0.25	0.25	0.25	0.25	0.25	0.25
Percent of plants not disposing of chromium under RCRA	0%	0%	0%	0%	0%	0%
Number of additional garbage bags required per establishment per year	30	30	30	30	30	30
Unit cost of garbage bags and disposal	\$500.00	\$500.00	\$500.00	\$500.00	\$500.00	\$500.00
Number of operating days per year	30	30	30	30	30	30
Janitorial time, in hours per day, to HEPA vacuum Cr(VI) spills	0.5	0.5	0.5	0.5	0.5	0.5
Janitorial wage rate, \$/hour	\$14.08	\$14.08	\$14.08	\$14.08	\$14.08	\$14.08
Total Annualized O&M Cost	\$8,942	\$8,942	\$8,942	\$8,942	\$8,942	\$8,942
+ Annualized Capital Cost	\$2,783	\$2,783	\$2,783	\$2,783	\$2,783	\$2,783
Total Annualized Cost	\$11,726	\$11,726	\$11,726	\$11,726	\$11,726	\$11,726
Rounded Annualized Cost	\$11,730	\$11,730	\$11,730	\$11,730	\$11,730	\$11,730

Sector 10. Plastic Colorant Producers and Users. Medical Surveillance Costs - Large Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Medical Surveillance for Large Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Required Controls	Medical Surveillance	Medical Surveillance	Medical Surveillance	Medical Surveillance	Medical Surveillance	Medical Surveillance
Capital						
Number of plants represented by the model plant	92	92	92	92	92	92
Percent of previously exposed employees who will be found to have abnormal exam results	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Clerical Wage, \$/hr	\$18.58	\$18.58	\$18.58	\$18.58	\$18.58	\$18.58
Number of employees requiring comprehensive medical exam	0	0	0	0	0	0
Full cost of a comprehensive medical exam	\$400.76	\$400.76	\$400.76	\$400.76	\$400.76	\$400.76
Employee time, in hours, for a full comprehensive medical exam	4	4	4	4	4	4
Number of employees requiring a limited medical exam	0	0	0	0	0	0
Full cost of a limited medical exam	\$125.00	\$125.00	\$125.00	\$125.00	\$125.00	\$125.00
Employee time, in hours, for a full limited medical exam	3	3	3	3	3	3
Clerical time per employee, in hours, to establish detailed medical records	1	1	1	1	1	1
Non-supervisory wage rate, \$/hr	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76
Total number of potentially exposed employees above the PEL and workers with "signs and symptoms"	0	0	0	0	0	0
Total up-front cost of medical surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Annualized O&M						
Percent of employees exposed at or above the action level 30 days per year (and therefore requiring a limited or comprehensive medical exam) who will be found to have abnormal results	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Percent of plants with annual medical testing in the baseline	100%	100%	100%	100%	100%	100%
Percent of plants that have jobs available for employees with abnormal exam results	100%	100%	100%	100%	100%	100%
Cost of additional medical testing after exam results are abnormal	\$213.17	\$213.17	\$213.17	\$213.17	\$213.17	\$213.17
Employee time, in hours, for additional medical testing after exam results are abnormal	3	3	3	3	3	3
Cost of a partial comprehensive medical exam	\$200.38	\$200.38	\$200.38	\$200.38	\$200.38	\$200.38
Incremental employee time, in hours, for a partial medical exam	3	3	3	3	3	3
Cost of a partial limited medical exam	\$106.59	\$106.59	\$106.59	\$106.59	\$106.59	\$106.59
Incremental employee time, in hours, for a partial limited medical exam	0.75	0.75	0.75	0.75	0.75	0.75
Length of time medical removal protection benefits are required for employees that have abnormal exam results and can't switch to a job that does not have exposure to chromium (VI) in days	0	0	0	0	0	0
Supervisory time, in hours, for workplace reassessment after exam results are abnormal	4	4	4	4	4	4
Supervisory wage rate, \$/hr	\$36.06	\$36.06	\$36.06	\$36.06	\$36.06	\$36.06
Employee turnover rate	29.16%	29.16%	29.16%	29.16%	29.16%	29.16%
% of dermally exposed employees with "signs and symptoms"	0.088%	0.088%	0.088%	0.088%	0.088%	0.088%
Number of employees requiring a limited medical exam b/c > PEL ¹	0	0	0	0	0	0
Number of employees above the PEL requiring a limited medical exam b/c of dermal "signs and symptoms" ¹	0	0	0	0	0	0
Number of employees requiring a comprehensive medical exam b/c > PEL ¹	0	0	0	0	0	0
Number of employees above the PEL requiring a comprehensive medical exam b/c of dermal "signs and symptoms" ¹	0	0	0	0	0	0
Total Annualized O&M Cost	\$0	\$0	\$0	\$0	\$0	\$0
Total Annualized Cost	\$0	\$0	\$0	\$0	\$0	\$0
Rounded Annualized Cost	\$0	\$0	\$0	\$0	\$0	\$0

¹This industry is not required to conduct medical exams because it uses Cr(VI) < 30 days per year

Sector 10. Plastic Colorant Producers and Users. Medical Surveillance Costs - Small Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Medical Surveillance for Small Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Required Controls	Medical Surveillance	Medical Surveillance	Medical Surveillance	Medical Surveillance	Medical Surveillance	Medical Surveillance
Capital						
Number of plants represented by the model plant	45	45	45	45	45	45
Percent of previously exposed employees who will be found to have abnormal exam results	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Clerical Wage, \$/hr	\$18.58	\$18.58	\$18.58	\$18.58	\$18.58	\$18.58
Number of employees requiring comprehensive medical exam	0	0	0	0	0	0
Full cost of a comprehensive medical exam	\$400.76	\$400.76	\$400.76	\$400.76	\$400.76	\$400.76
Employee time, in hours, for a full comprehensive medical exam	4	4	4	4	4	4
Number of employees requiring a limited medical exam	0	0	0	0	0	0
Full cost of a limited medical exam	\$125.00	\$125.00	\$125.00	\$125.00	\$125.00	\$125.00
Employee time, in hours, for a full limited medical exam	3	3	3	3	3	3
Clerical time per employee, in hours, to establish detailed medical records	1	1	1	1	1	1
Non-supervisory wage rate, \$/hr	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76
Total number of potentially exposed employees above the PEL and workers with "signs and symptoms"	0	0	0	0	0	0
Total up-front cost of medical surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Annualized O&M						
Percent of employees exposed at or above the action level 30 days per year (and therefore requiring a limited or comprehensive medical exam) who will be found to have abnormal results	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Percent of plants with annual medical testing in the baseline	100%	100%	100%	100%	100%	100%
Percent of plants that have jobs available for employees with abnormal exam results	100%	100%	100%	100%	100%	100%
Cost of additional medical testing after exam results are abnormal	\$213.17	\$213.17	\$213.17	\$213.17	\$213.17	\$213.17
Employee time, in hours, for additional medical testing after exam results are abnormal	3	3	3	3	3	3
Cost of a partial comprehensive medical exam	\$200.38	\$200.38	\$200.38	\$200.38	\$200.38	\$200.38
Incremental employee time, in hours, for a partial medical exam	3	3	3	3	3	3
Cost of a partial limited medical exam	\$106.59	\$106.59	\$106.59	\$106.59	\$106.59	\$106.59
Incremental employee time, in hours, for a partial limited medical exam	0.75	0.75	0.75	0.75	0.75	0.75
Length of time medical removal protection benefits are required for employees that have abnormal exam results and can't switch to a job that does not have exposure to chromium (VI) in days	0	0	0	0	0	0
Supervisory time, in hours, for workplace reassessment after exam results are abnormal	4	4	4	4	4	4
Supervisory wage rate, \$/hr	\$36.06	\$36.06	\$36.06	\$36.06	\$36.06	\$36.06
Employee turnover rate	29.16%	29.16%	29.16%	29.16%	29.16%	29.16%
% of dermally exposed employees with "signs and symptoms"	0.088%	0.088%	0.088%	0.088%	0.088%	0.088%
Number of employees requiring a limited medical exam b/c > PEL ¹	0	0	0	0	0	0
Number of employees above the PEL requiring a limited medical exam b/c of dermal "signs and symptoms" ¹	0	0	0	0	0	0
Number of employees requiring a comprehensive medical exam b/c > PEL ¹	0	0	0	0	0	0
Number of employees above the PEL requiring a comprehensive medical exam b/c of dermal "signs and symptoms" ¹	0	0	0	0	0	0
Total Annualized O&M Cost	\$0	\$0	\$0	\$0	\$0	\$0
Total Annualized Cost	\$0	\$0	\$0	\$0	\$0	\$0
Rounded Annualized Cost	\$0	\$0	\$0	\$0	\$0	\$0

¹This industry is not required to conduct medical exams because it uses Cr(VI) < 30 days per year

Sector 10. Plastic Colorant Producers and Users. Communication Costs - Large Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Communication of Chromium (VI) Hazards to Employees for Large Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Required Controls	Communication of Chromium (VI) Hazards to Employees	Communication of Chromium (VI) Hazards to Employees	Communication of Chromium (VI) Hazards to Employees	Communication of Chromium (VI) Hazards to Employees	Communication of Chromium (VI) Hazards to Employees	Communication of Chromium (VI) Hazards to Employees
Capital						
Number of plants represented by the model plant	92	92	92	92	92	92
Clerical Wage rate, \$/hour	\$18.58	\$18.58	\$18.58	\$18.58	\$18.58	\$18.58
Clerical time, in hours, for initial training	4	4	4	4	4	4
Supervisory time, in hours, for initial training	2	2	2	2	2	2
Employee time, in hours, for initial training	1	1	1	1	1	1
Non-supervisory wage rate, \$/hour	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76
Number of workers potentially exposed to airborne Cr(VI) and workers with dermal exposure	6	6	6	6	6	6
Supervisory wage rate, \$/hour	\$36.06	\$36.06	\$36.06	\$36.06	\$36.06	\$36.06
Cost per employee for training aids and materials	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00
Bilingual Trainer Wage Rate, \$/hour	\$29.62	\$29.62	\$29.62	\$29.62	\$29.62	\$29.62
Number of potentially exposed employees per training session	10	10	10	10	10	10
Percent of plants requiring warning signs that employee is entering a regulated area signs	15%	28%	36%	86%	86%	97%
Number of job categories exposed above the PEL	3	3	3	3	3	4
Number of warning signs for entering each regulated area	2	2	2	2	2	2
Unit cost of OSHA-regulation warning signs with mounting materials	\$3.84	\$3.84	\$3.84	\$3.84	\$3.84	\$3.84
Useful life, in years, of a warning sign	10	10	10	10	10	10
Total up-front cost of communication of hazards	\$30,431	\$30,431	\$30,431	\$30,431	\$30,431	\$30,431
Total capital cost of communication of hazards	\$322	\$598	\$753	\$1,830	\$1,830	\$2,740
Annualized						
O&M						
Annual clerical time, in hours, to prepare for annual training	2	2	2	2	2	2
Employee time, in hours, for annual training	0.5	0.5	0.5	0.5	0.5	0.5
Annual supervisory time, in hours, for initial and annual training	1	1	1	1	1	1
Employee turnover rate	29.16%	29.16%	29.16%	29.16%	29.16%	29.16%
Percent of establishments that require annual training	0%	0%	0%	0%	0%	0%
Total Annualized O&M Cost	\$5,727	\$5,727	\$5,727	\$5,727	\$5,727	\$5,727
+ Annualized Capital Cost	\$24	\$45	\$56	\$137	\$137	\$205
Total Annualized Cost	\$5,751	\$5,772	\$5,784	\$5,864	\$5,864	\$5,932
Rounded Annualized Cost	\$5,750	\$5,770	\$5,780	\$5,860	\$5,860	\$5,930

Sector 10. Plastic Colorant Producers and Users. Communication Costs - Small Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Communication of Chromium (VI) Hazards to Employees for Small Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Required Controls	Communication of Chromium (VI) Hazards to Employees	Communication of Chromium (VI) Hazards to Employees	Communication of Chromium (VI) Hazards to Employees	Communication of Chromium (VI) Hazards to Employees	Communication of Chromium (VI) Hazards to Employees	Communication of Chromium (VI) Hazards to Employees
Capital						
Number of plants represented by the model plant	45	45	45	45	45	45
Clerical Wage rate, \$/hour	\$18.58	\$18.58	\$18.58	\$18.58	\$18.58	\$18.58
Clerical time, in hours, for initial training	4	4	4	4	4	4
Supervisory time, in hours, for initial training	2	2	2	2	2	2
Employee time, in hours, for initial training	1	1	1	1	1	1
Non-supervisory wage rate, \$/hour	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76	\$25.76
Number of workers potentially exposed to airborne Cr(VI) and workers with dermal exposure	1	1	1	1	1	1
Supervisory wage rate, \$/hour	\$36.06	\$36.06	\$36.06	\$36.06	\$36.06	\$36.06
Cost per employee for training aids and materials	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00
Bilingual Trainer Wage Rate, \$/hour	\$29.62	\$29.62	\$29.62	\$29.62	\$29.62	\$29.62
Number of potentially exposed employees per training session	10	10	10	10	10	10
Percent of plants requiring warning signs that employee is entering a regulated area signs	15%	28%	36%	86%	86%	97%
Number of job categories exposed above the PEL	5	5	5	5	5	5
Number of warning signs for entering each regulated area	2	2	2	2	2	2
Unit cost of OSHA-regulation warning signs with mounting materials	\$3.84	\$3.84	\$3.84	\$3.84	\$3.84	\$3.84
Useful life, in years, of a warning sign	10	10	10	10	10	10
Total up-front cost of communication of hazards	\$7,972	\$7,972	\$7,972	\$7,972	\$7,972	\$7,972
Total capital cost of communication of hazards	\$263	\$488	\$614	\$1,492	\$1,492	\$1,675
Annualized O&M						
Annual clerical time, in hours, to prepare for annual training	2	2	2	2	2	2
Employee time, in hours, for annual training	0.5	0.5	0.5	0.5	0.5	0.5
Annual supervisory time, in hours, for initial and annual training	1	1	1	1	1	1
Employee turnover rate	29.16%	29.16%	29.16%	29.16%	29.16%	29.16%
Percent of establishments that require annual training	0%	0%	0%	0%	0%	0%
Total Annualized O&M Cost	\$467	\$467	\$467	\$467	\$467	\$467
+ Annualized Capital Cost	\$20	\$37	\$46	\$112	\$112	\$125
Total Annualized Cost	\$487	\$503	\$513	\$579	\$579	\$592
Rounded Annualized Cost	\$490	\$500	\$510	\$580	\$580	\$590

Sector 10. Plastic Colorant Producers and Users. Recordkeeping Costs - Large Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Recordkeeping for Large Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Required Controls	Recordkeeping	Recordkeeping	Recordkeeping	Recordkeeping	Recordkeeping	Recordkeeping
Capital						
Number of plants represented by the model plant	92	92	92	92	92	92
Number of workers potentially exposed to airborne Cr(VI) and workers with dermal exposure	6	6	6	6	6	6
Cost per employee for computer file space	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
Total capital cost of recordkeeping	\$552	\$552	\$552	\$552	\$552	\$552
Annualized O&M						
Clerical wage rate, \$/hour	\$18.58	\$18.58	\$18.58	\$18.58	\$18.58	\$18.58
Useful life, in years, of computer file space	10	10	10	10	10	10
Annual incremental clerical recordkeeping time per employee, in hours	0.25	0.25	0.25	0.25	0.25	0.25
Total Annualized O&M Cost	\$2,564	\$2,564	\$2,564	\$2,564	\$2,564	\$2,564
+ Annualized capital cost of recordkeeping	\$79	\$79	\$79	\$79	\$79	\$79
Total Annualized Cost	\$2,643	\$2,643	\$2,643	\$2,643	\$2,643	\$2,643
Rounded Annualized Cost	\$2,640	\$2,640	\$2,640	\$2,640	\$2,640	\$2,640

Sector 10. Plastic Colorant Producers and Users. Recordkeeping Costs - Small Establishments.

10. PLASTIC COLORANT PRODUCERS AND USERS						
Cost of Recordkeeping for Small Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Required Controls	Recordkeeping	Recordkeeping	Recordkeeping	Recordkeeping	Recordkeeping	Recordkeeping
Capital						
Number of plants represented by the model plant	45	45	45	45	45	45
Number of workers potentially exposed to airborne Cr(VI) and workers with dermal exposure	1	1	1	1	1	1
Cost per employee for computer file space	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
Total capital cost of recordkeeping	\$45	\$45	\$45	\$45	\$45	\$45
Annualized O&M						
Clerical wage rate, \$/hour	\$18.58	\$18.58	\$18.58	\$18.58	\$18.58	\$18.58
Useful life, in years, of computer file space	10	10	10	10	10	10
Annual incremental clerical recordkeeping time per employee, in hours	0.25	0.25	0.25	0.25	0.25	0.25
Total Annualized O&M Cost	\$209	\$209	\$209	\$209	\$209	\$209
+ Annualized capital cost of recordkeeping	\$6	\$6	\$6	\$6	\$6	\$6
Total Annualized Cost	\$215	\$215	\$215	\$215	\$215	\$215
Rounded Annualized Cost	\$220	\$220	\$220	\$220	\$220	\$220

Sector 10. Plastic Colorant Producers and Users. Total Costs - Large Establishments.

Annualized Cost Required to Achieve Alternative PEL During the First Year for Large Plastic Colorant Producer and User Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$484,114	\$607,614	\$886,514	\$1,241,414	\$1,289,014	\$1,614,914
Respirator Fitting	\$6,520	\$8,210	\$19,950	\$19,950	\$22,400	\$23,120
Respirator Protection	\$79,742	\$110,402	\$231,859	\$288,717	\$312,992	\$331,971
Personal Protective Equipment	\$31,250	\$31,250	\$31,250	\$31,250	\$31,250	\$28,070
Establishments that do not supply protective work clothing and equipment in the baseline	\$26,392	\$26,392	\$26,392	\$26,392	\$26,392	\$22,022
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$4,856	\$4,856	\$4,856	\$4,856	\$4,856	\$4,052
Hygiene Areas and Practices						
If install showers and change rooms	\$63,900	\$63,900	\$63,900	\$63,900	\$63,900	\$80,300
If install handwashing facilities and change rooms	\$11,100	\$11,100	\$11,100	\$11,100	\$11,100	\$9,900
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$9,590	\$9,590	\$9,590	\$9,590	\$9,590	\$9,590
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$36,381	\$36,571	\$36,681	\$37,421	\$37,421	\$38,061
Recordkeeping	\$2,640	\$2,640	\$2,640	\$2,640	\$2,640	\$2,640
Total Annualized Cost in the First Year to Achieve Alternative PEL						
If install showers and change rooms	\$714,137	\$870,177	\$1,282,384	\$1,694,882	\$1,769,207	\$2,106,666
If install handwashing facilities and change rooms	\$661,337	\$817,377	\$1,229,584	\$1,642,082	\$1,716,407	\$2,056,266

Annualized Cost Required to Achieve Alternative PEL After the First Year for Large Plastic Colorant Producer and User Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$232,700	\$356,200	\$635,100	\$960,000	\$1,037,900	\$1,363,500
Respirator Fitting	\$6,520	\$8,210	\$19,950	\$19,950	\$22,400	\$23,120
Respirator Protection	\$79,742	\$110,402	\$231,859	\$288,717	\$312,992	\$331,971
Personal Protective Equipment	\$31,250	\$31,250	\$31,250	\$31,250	\$31,250	\$26,070
Establishments that do not supply protective work clothing and equipment in the baseline	\$26,392	\$26,392	\$26,392	\$26,392	\$26,392	\$22,022
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$4,856	\$4,856	\$4,856	\$4,856	\$4,856	\$4,052
Hygiene Areas and Practices						
If install showers and change rooms	\$63,900	\$63,900	\$63,900	\$63,900	\$63,900	\$80,300
If install handwashing facilities and change rooms	\$11,100	\$11,100	\$11,100	\$11,100	\$11,100	\$9,900
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$9,590	\$9,590	\$9,590	\$9,590	\$9,590	\$9,590
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$5,950	\$6,140	\$6,250	\$6,990	\$6,990	\$7,630
Recordkeeping	\$2,640	\$2,640	\$2,640	\$2,640	\$2,640	\$2,640
Total Annualized Cost to Achieve Alternative PEL After the First Year						
If install showers and change rooms	\$432,292	\$588,332	\$1,000,539	\$1,413,037	\$1,487,362	\$1,824,821
If install handwashing facilities and change rooms	\$379,492	\$535,532	\$947,739	\$1,360,237	\$1,434,562	\$1,774,421

10 Year Annual Cost Required to Achieve Alternative PEL for Large Plastic Colorant Producer and User Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$268,496	\$391,996	\$670,896	\$1,025,796	\$1,073,396	\$1,399,296
Respirator Fitting	\$6,520	\$8,210	\$19,950	\$19,950	\$22,400	\$23,120
Respirator Protection	\$79,742	\$110,402	\$231,859	\$288,717	\$312,992	\$331,971
Personal Protective Equipment	\$31,250	\$31,250	\$31,250	\$31,250	\$31,250	\$26,070
Establishments that do not supply protective work clothing and equipment in the baseline	\$26,392	\$26,392	\$26,392	\$26,392	\$26,392	\$22,022
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$4,856	\$4,856	\$4,856	\$4,856	\$4,856	\$4,052
Hygiene Areas and Practices						
If install showers and change rooms	\$63,900	\$63,900	\$63,900	\$63,900	\$63,900	\$80,300
If install handwashing facilities and change rooms	\$11,100	\$11,100	\$11,100	\$11,100	\$11,100	\$9,900
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$9,590	\$9,590	\$9,590	\$9,590	\$9,590	\$9,590
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$10,283	\$10,473	\$10,583	\$11,323	\$11,323	\$11,963
Recordkeeping	\$2,640	\$2,640	\$2,640	\$2,640	\$2,640	\$2,640
Total Annualized Cost to Achieve Alternative PEL After the First Year						
If install showers and change rooms	\$472,420	\$628,460	\$1,040,667	\$1,453,165	\$1,527,490	\$1,864,949
If install handwashing facilities and change rooms	\$419,620	\$575,660	\$967,867	\$1,400,365	\$1,474,690	\$1,814,549

Sector 10. Plastic Colorant Producers and Users. Total Costs - Small Establishments.

Annualized Cost Required to Achieve Alternative PEL During the First Year for Small Plastic Colorant Producer and User Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$110,823	\$154,823	\$243,823	\$376,123	\$390,723	\$421,823
Respirator Fitting	\$11,410	\$14,360	\$3,510	\$3,510	\$3,950	\$4,070
Respirator Protection	\$4,198	\$5,806	\$12,205	\$15,298	\$16,879	\$17,732
Personal Protective Equipment	\$4,980	\$4,980	\$4,980	\$4,980	\$4,980	\$4,980
Establishments that do not supply protective work clothing and equipment in the baseline	\$4,639	\$4,639	\$4,639	\$4,639	\$4,639	\$4,639
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$324	\$324	\$324	\$324	\$324	\$324
Hygiene Areas and Practices						
If install showers and change rooms	\$69,800	\$69,800	\$69,800	\$69,800	\$69,800	\$64,500
If install handwashing facilities and change rooms	\$22,500	\$22,500	\$22,500	\$22,500	\$22,500	\$19,300
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$11,730	\$11,730	\$11,730	\$11,730	\$11,730	\$11,730
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$8,622	\$8,772	\$8,862	\$9,472	\$9,472	\$9,802
Recordkeeping	\$220	\$220	\$220	\$220	\$220	\$220
Total Annualized Cost in the First Year to Achieve Alternative PEL						
If install showers and change rooms	\$221,861	\$270,471	\$355,210	\$491,111	\$507,534	\$534,637
If install handwashing facilities and change rooms	\$174,561	\$223,171	\$307,910	\$443,811	\$460,234	\$489,437

Annualized Cost Required to Achieve Alternative PEL After the First Year for Small Plastic Colorant Producer and User Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$78,400	\$122,300	\$211,400	\$343,800	\$358,200	\$380,300
Respirator Fitting	\$11,410	\$14,360	\$3,510	\$3,510	\$3,950	\$4,070
Respirator Protection	\$4,198	\$5,806	\$12,205	\$15,298	\$16,879	\$17,732
Personal Protective Equipment	\$4,980	\$4,980	\$4,980	\$4,980	\$4,980	\$4,980
Establishments that do not supply protective work clothing and equipment in the baseline	\$4,639	\$4,639	\$4,639	\$4,639	\$4,639	\$4,639
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$324	\$324	\$324	\$324	\$324	\$324
Hygiene Areas and Practices						
If install showers and change rooms	\$69,800	\$69,800	\$69,800	\$69,800	\$69,800	\$64,500
If install handwashing facilities and change rooms	\$22,500	\$22,500	\$22,500	\$22,500	\$22,500	\$19,300
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$11,730	\$11,730	\$11,730	\$11,730	\$11,730	\$11,730
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$850	\$800	\$890	\$1,500	\$1,500	\$1,630
Recordkeeping	\$220	\$220	\$220	\$220	\$220	\$220
Total Annualized Cost to Achieve Alternative PEL After the First Year						
If install showers and change rooms	\$181,366	\$229,976	\$314,715	\$450,616	\$467,039	\$484,142
If install handwashing facilities and change rooms	\$134,066	\$182,676	\$267,415	\$403,316	\$419,739	\$448,942

10 Year Annual Cost Required to Achieve Alternative PEL for Small Plastic Colorant Producer and User Establishments						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$83,031	\$126,931	\$216,031	\$348,231	\$362,831	\$393,931
Respirator Fitting	\$11,410	\$14,360	\$3,510	\$3,510	\$3,950	\$4,070
Respirator Protection	\$4,198	\$5,806	\$12,205	\$15,298	\$16,879	\$17,732
Personal Protective Equipment	\$4,980	\$4,980	\$4,980	\$4,980	\$4,980	\$4,980
Establishments that do not supply protective work clothing and equipment in the baseline	\$4,639	\$4,639	\$4,639	\$4,639	\$4,639	\$4,639
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$324	\$324	\$324	\$324	\$324	\$324
Hygiene Areas and Practices						
If install showers and change rooms	\$69,800	\$69,800	\$69,800	\$69,800	\$69,800	\$64,500
If install handwashing facilities and change rooms	\$22,500	\$22,500	\$22,500	\$22,500	\$22,500	\$19,300
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$11,730	\$11,730	\$11,730	\$11,730	\$11,730	\$11,730
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$1,785	\$1,935	\$2,025	\$2,635	\$2,635	\$2,765
Recordkeeping	\$220	\$220	\$220	\$220	\$220	\$220
Total Annualized Cost to Achieve Alternative PEL After the First Year						
If install showers and change rooms	\$187,132	\$235,742	\$320,481	\$456,382	\$472,805	\$499,908
If install handwashing facilities and change rooms	\$139,832	\$188,442	\$273,181	\$409,082	\$425,505	\$454,708

Sector 10. Plastic Colorant Producers and Users. Cost per Establishment - Large Establishments.

Annualized Cost Required to Achieve Alternative PEL During the First Year for One Large Plastic Colorant Producer and User Establishment Based on the Model Plant						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$5,262	\$6,604	\$9,636	\$13,494	\$14,011	\$17,553
Respirator Fitting	\$71	\$89	\$217	\$217	\$243	\$251
Respirator Protection	\$867	\$1,200	\$2,520	\$3,138	\$3,402	\$3,608
Personal Protective Equipment	\$340	\$340	\$340	\$340	\$340	\$283
Establishments that do not supply protective work clothing and equipment in the baseline	\$287	\$287	\$287	\$287	\$287	\$239
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$53	\$53	\$53	\$53	\$53	\$44
Hygiene Areas and Practices						
If install showers and change rooms	\$695	\$695	\$695	\$695	\$695	\$655
If install handwashing facilities and change rooms	\$121	\$121	\$121	\$121	\$121	\$108
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$104	\$104	\$104	\$104	\$104	\$104
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$395	\$398	\$399	\$407	\$407	\$414
Recordkeeping	\$29	\$29	\$29	\$29	\$29	\$29
Total Annualized Cost in the First Year to Achieve Alternative PEL						
If install showers and change rooms	\$7,762	\$9,458	\$13,939	\$18,423	\$19,231	\$22,899
If install handwashing facilities and change rooms	\$7,188	\$8,885	\$13,365	\$17,849	\$18,657	\$22,351

Annualized Cost Required to Achieve Alternative PEL After the First Year for One Large Plastic Colorant Producer and User Establishment Based on the Model Plant						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$2,529	\$3,872	\$6,903	\$10,761	\$11,278	\$14,821
Respirator Fitting	\$71	\$89	\$217	\$217	\$243	\$251
Respirator Protection	\$867	\$1,200	\$2,520	\$3,138	\$3,402	\$3,608
Personal Protective Equipment	\$340	\$340	\$340	\$340	\$340	\$283
Establishments that do not supply protective work clothing and equipment in the baseline	\$287	\$287	\$287	\$287	\$287	\$239
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$53	\$53	\$53	\$53	\$53	\$44
Hygiene Areas and Practices						
If install showers and change rooms	\$695	\$695	\$695	\$695	\$695	\$655
If install handwashing facilities and change rooms	\$121	\$121	\$121	\$121	\$121	\$108
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$104	\$104	\$104	\$104	\$104	\$104
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$65	\$67	\$68	\$76	\$76	\$83
Recordkeeping	\$29	\$29	\$29	\$29	\$29	\$29
Total Annualized Cost to Achieve Alternative PEL After the First Year						
If install showers and change rooms	\$4,699	\$6,395	\$10,875	\$15,359	\$16,167	\$19,835
If install handwashing facilities and change rooms	\$4,125	\$5,821	\$10,302	\$14,785	\$15,593	\$19,287

10 Year Annual Cost Required to Achieve Alternative PEL for One Large Plastic Colorant Producer and User Establishment						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$2,918	\$4,261	\$7,292	\$11,150	\$11,667	\$15,210
Respirator Fitting	\$71	\$89	\$217	\$217	\$243	\$251
Respirator Protection	\$867	\$1,200	\$2,520	\$3,138	\$3,402	\$3,608
Personal Protective Equipment	\$340	\$340	\$340	\$340	\$340	\$283
Establishments that do not supply protective work clothing and equipment in the baseline	\$287	\$287	\$287	\$287	\$287	\$239
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$53	\$53	\$53	\$53	\$53	\$44
Hygiene Areas and Practices						
If install showers and change rooms	\$695	\$695	\$695	\$695	\$695	\$655
If install handwashing facilities and change rooms	\$121	\$121	\$121	\$121	\$121	\$108
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$104	\$104	\$104	\$104	\$104	\$104
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$112	\$114	\$115	\$123	\$123	\$130
Recordkeeping	\$29	\$29	\$29	\$29	\$29	\$29
Total Annualized Cost to Achieve Alternative PEL After the First Year						
If install showers and change rooms	\$5,135	\$6,831	\$11,312	\$15,795	\$16,603	\$20,271
If install handwashing facilities and change rooms	\$4,561	\$6,257	\$10,738	\$15,221	\$16,029	\$19,723

Sector 10. Plastic Colorant Producers and Users. Cost per Establishment - Small Establishments.

Annualized Cost Required to Achieve Alternative PEL During the First Year for One Small Plastic Colorant Producer and User Establishment Based on the Model Plant						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$2,465	\$3,441	\$5,421	\$8,358	\$8,683	\$9,374
Respirator Fitting	\$254	\$319	\$78	\$78	\$88	\$90
Respirator Protection	\$93	\$129	\$271	\$340	\$371	\$394
Personal Protective Equipment	\$110	\$110	\$110	\$110	\$110	\$110
Establishments that do not supply protective work clothing and equipment in the baseline	\$103	\$103	\$103	\$103	\$103	\$103
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$7	\$7	\$7	\$7	\$7	\$7
Hygiene Areas and Practices						
If install showers and change rooms	\$1,551	\$1,551	\$1,551	\$1,551	\$1,551	\$1,433
If install handwashing facilities and change rooms	\$500	\$500	\$500	\$500	\$500	\$429
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$261	\$261	\$261	\$261	\$261	\$261
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$192	\$196	\$197	\$210	\$210	\$213
Recordkeeping	\$5	\$5	\$5	\$5	\$5	\$5
Total Annualized Cost in the First Year to Achieve Alternative PEL						
If install showers and change rooms	\$4,930	\$6,010	\$7,894	\$10,914	\$11,279	\$11,881
If install handwashing facilities and change rooms	\$3,879	\$4,959	\$6,842	\$9,862	\$10,227	\$10,876

Annualized Cost Required to Achieve Alternative PEL After the First Year for One Small Plastic Colorant Producer and User Establishment Based on the Model Plant						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$1,742	\$2,718	\$4,698	\$7,636	\$7,960	\$8,651
Respirator Fitting	\$254	\$319	\$78	\$78	\$88	\$90
Respirator Protection	\$93	\$129	\$271	\$340	\$371	\$394
Personal Protective Equipment	\$110	\$110	\$110	\$110	\$110	\$110
Establishments that do not supply protective work clothing and equipment in the baseline	\$103	\$103	\$103	\$103	\$103	\$103
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$7	\$7	\$7	\$7	\$7	\$7
Hygiene Areas and Practices						
If install showers and change rooms	\$1,551	\$1,551	\$1,551	\$1,551	\$1,551	\$1,433
If install handwashing facilities and change rooms	\$500	\$500	\$500	\$500	\$500	\$429
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$261	\$261	\$261	\$261	\$261	\$261
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$14	\$18	\$20	\$33	\$33	\$36
Recordkeeping	\$5	\$5	\$5	\$5	\$5	\$5
Total Annualized Cost to Achieve Alternative PEL After the First Year						
If install showers and change rooms	\$4,030	\$5,111	\$6,994	\$10,014	\$10,379	\$10,981
If install handwashing facilities and change rooms	\$2,979	\$4,059	\$5,943	\$8,963	\$9,328	\$9,976

10 Year Annual Cost Required to Achieve Alternative PEL for One Small Plastic Colorant Producer and User Establishment						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$1,845	\$2,821	\$4,801	\$7,738	\$8,063	\$8,754
Respirator Fitting	\$254	\$319	\$78	\$78	\$88	\$90
Respirator Protection	\$93	\$129	\$271	\$340	\$371	\$394
Personal Protective Equipment	\$110	\$110	\$110	\$110	\$110	\$110
Establishments that do not supply protective work clothing and equipment in the baseline	\$103	\$103	\$103	\$103	\$103	\$103
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$7	\$7	\$7	\$7	\$7	\$7
Hygiene Areas and Practices						
If install showers and change rooms	\$1,551	\$1,551	\$1,551	\$1,551	\$1,551	\$1,433
If install handwashing facilities and change rooms	\$500	\$500	\$500	\$500	\$500	\$429
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$261	\$261	\$261	\$261	\$261	\$261
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$40	\$43	\$45	\$59	\$59	\$61
Recordkeeping	\$5	\$5	\$5	\$5	\$5	\$5
Total Annualized Cost to Achieve Alternative PEL After the First Year						
If install showers and change rooms	\$4,158	\$5,239	\$7,122	\$10,142	\$10,507	\$11,109
If install handwashing facilities and change rooms	\$3,107	\$4,188	\$6,071	\$9,091	\$9,456	\$10,105

Sector 10. Plastic Colorant Producers and Users. Non-Annualized Costs - Large Establishments.

Non-Annualized Cost Required to Achieve Alternative PEL During the First Year for Large Plastic Colorant Producer and User Establishments Based on the Model Plant						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$484,104	\$607,663	\$886,559	\$1,241,414	\$1,288,968	\$1,614,883
Respirator Fit-Testing	\$6,519	\$8,206	\$19,949	\$19,949	\$22,399	\$23,116
Respirator Protection	\$83,466	\$115,091	\$243,257	\$311,601	\$347,100	\$372,005
Personal Protective Equipment	\$31,247	\$31,247	\$31,247	\$31,247	\$31,247	\$26,074
Establishments that do not supply protective work clothing and equipment in the baseline	\$26,392	\$26,392	\$26,392	\$26,392	\$26,392	\$22,022
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$4,856	\$4,856	\$4,856	\$4,856	\$4,856	\$4,052
Hygiene Areas and Practices						
If install showers and change rooms	\$363,902	\$363,902	\$363,902	\$363,902	\$363,902	\$352,086
if install handwashing facilities and change rooms	\$72,392	\$72,392	\$72,392	\$72,392	\$72,392	\$63,014
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$24,329	\$24,329	\$24,329	\$24,329	\$24,329	\$24,329
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$37,884	\$39,359	\$40,188	\$45,955	\$45,955	\$50,824
Recordkeeping	\$3,116	\$3,116	\$3,116	\$3,116	\$3,116	\$3,116
Total Non-Annualized Cost in the First Year to Achieve Alternative PEL						
If install showers and change rooms	\$1,034,567	\$1,192,913	\$1,612,547	\$2,041,513	\$2,127,017	\$2,466,434
if install handwashing facilities and change rooms	\$743,057	\$901,404	\$1,321,037	\$1,750,003	\$1,835,507	\$2,177,362

Non-Annualized Cost Required to Achieve Alternative PEL During the Second through Tenth Year for Large Large Plastic Colorant Producer and User Establishments Based on the Model Plant						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$232,690	\$356,249	\$635,145	\$990,000	\$1,037,554	\$1,363,469
Respirator Fit-Testing	\$6,519	\$8,206	\$19,949	\$19,949	\$22,399	\$23,116
Respirator Protection	\$79,124	\$109,624	\$229,967	\$284,917	\$307,329	\$325,324
Personal Protective Equipment	\$31,247	\$31,247	\$31,247	\$31,247	\$31,247	\$26,074
Establishments that do not supply protective work clothing and equipment in the baseline	\$26,392	\$26,392	\$26,392	\$26,392	\$26,392	\$22,022
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$4,856	\$4,856	\$4,856	\$4,856	\$4,856	\$4,052
Hygiene Areas and Practices						
If install showers and change rooms	\$15,354	\$15,354	\$15,354	\$15,354	\$15,354	\$12,877
if install handwashing facilities and change rooms	\$2,184	\$2,184	\$2,184	\$2,184	\$2,184	\$2,144
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$7,146	\$7,146	\$7,146	\$7,146	\$7,146	\$7,146
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$5,727	\$5,727	\$5,727	\$5,727	\$5,727	\$5,727
Recordkeeping	\$2,564	\$2,564	\$2,564	\$2,564	\$2,564	\$2,564
Total Non-Annualized Cost in the Second through Tenth Year to Achieve Alternative PEL						
If install showers and change rooms	\$380,371	\$536,117	\$947,099	\$1,356,904	\$1,429,321	\$1,766,297
if install handwashing facilities and change rooms	\$367,201	\$522,948	\$933,929	\$1,343,735	\$1,416,151	\$1,755,565

Sector 10. Plastic Colorant Producers and Users. Non-Annualized Costs - Small Establishments.

Non-Annualized Upfront Cost Required to Achieve Alternative PEL During the First Year for Small Plastic Colorant Producer and User Establishments Based on the Model Plant						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$110,971	\$154,865	\$243,935	\$376,108	\$390,730	\$421,837
Respirator Fit-Testing	\$11,408	\$14,361	\$3,515	\$3,515	\$3,946	\$4,072
Respirator Protection	\$4,574	\$6,282	\$13,363	\$17,634	\$20,169	\$21,830
Personal Protective Equipment						
Establishments that do not supply protective work clothing and equipment in the baseline	\$4,639	\$4,639	\$4,639	\$4,639	\$4,639	\$4,639
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$324	\$324	\$324	\$324	\$324	\$324
Hygiene Areas and Practices						
If install showers and change rooms	\$427,491	\$427,491	\$427,491	\$427,491	\$427,491	\$400,147
If install handwashing facilities and change rooms	\$166,083	\$166,083	\$166,083	\$166,083	\$166,083	\$140,925
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$28,487	\$28,487	\$28,487	\$28,487	\$28,487	\$28,487
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$9,846	\$11,049	\$11,724	\$16,425	\$16,425	\$17,406
Recordkeeping	\$254	\$254	\$254	\$254	\$254	\$254
Total Non-Annualized Cost in the First Year to Achieve Alternative PEL						
If install showers and change rooms	\$593,031	\$642,789	\$728,769	\$869,914	\$887,502	\$894,034
If install handwashing facilities and change rooms	\$331,623	\$381,381	\$467,361	\$608,506	\$626,094	\$634,812

Non-Annualized Upfront Cost Required to Achieve Alternative PEL During the Second through Tenth Year for Small Large Plastic Colorant Producer and User Establishments Based on the Model Plant						
Alternative PEL (ug/m3)	20	10	5	1	0.5	0.25
Affected Job Category	All	All	All	All	All	All
Engineering Controls	\$0	\$0	\$0	\$0	\$0	\$0
Exposure Monitoring	\$78,448	\$122,342	\$211,412	\$343,585	\$358,207	\$389,314
Respirator Fit-Testing	\$11,408	\$14,361	\$3,515	\$3,515	\$3,946	\$4,072
Respirator Protection	\$4,133	\$5,726	\$12,013	\$14,908	\$16,100	\$17,051
Personal Protective Equipment						
Establishments that do not supply protective work clothing and equipment in the baseline	\$4,639	\$4,639	\$4,639	\$4,639	\$4,639	\$4,639
Establishments that supply protective work clothing and equipment in the baseline but have employees pay	\$324	\$324	\$324	\$324	\$324	\$324
Hygiene Areas and Practices						
If install showers and change rooms	\$13,769	\$13,769	\$13,769	\$13,769	\$13,769	\$11,547
If install handwashing facilities and change rooms	\$1,959	\$1,959	\$1,959	\$1,959	\$1,959	\$1,923
Housekeeping - Additional Control Using Wet or HEPA Vacuums	\$8,942	\$8,942	\$8,942	\$8,942	\$8,942	\$8,942
Medical Surveillance	\$0	\$0	\$0	\$0	\$0	\$0
Communication of Chromium (VI) Hazards to Employees	\$467	\$467	\$467	\$467	\$467	\$467
Recordkeeping	\$209	\$209	\$209	\$209	\$209	\$209
Total Non-Annualized Cost in the Second through Tenth Year to Achieve Alternative PEL						
If install showers and change rooms	\$117,376	\$165,817	\$250,326	\$385,394	\$401,640	\$431,603
If install handwashing facilities and change rooms	\$105,567	\$154,007	\$238,517	\$373,584	\$389,830	\$421,979

Sector 10. Plastic Colorant Producers and Users.

NAICS Codes 3252, 3253, 3254, 3259, 3261

ESTABLISHMENTS		Total	Affected Establishments		
	Industry		Number	Percentage	
Establishments with < 20 Employees	6,754		45	0.67%	
Establishments with ≥ 20 Employees	8,195		92	1.12%	
TOTAL	14,949		137	0.92%	
EMPLOYEES		Total	Affected Employees		
	Industry		Number	Percentage	
Establishments with < 20 Employees	53,786		358	0.67%	
Establishments with ≥ 20 Employees	883,749		9,921	1.12%	
TOTAL	937,535		10,280	1.10%	
REVENUES		Total	Affected Revenues		
	Industry		Total	per Establishment	per Enterprise
Establishments with < 20 Employees	\$ 7,043,513,602	\$	46,928,948	\$ 1,042,866	
Establishments with ≥ 20 Employees	\$ 115,730,824,041	\$	1,299,235,609	\$ 14,122,126	
TOTAL	\$ 122,774,337,643	\$	1,346,164,556	\$ 9,826,019	\$12,943,890
PROFITS			Affected Profits		
	Rate		Total	per Establishment	per Enterprise
Establishments < 20	5.12%	\$	2,402,293	\$ 53,384	
Establishments ≥ 20	5.12%	\$	66,507,871	\$ 722,912	
TOTAL	5.12%	\$	68,910,164	\$ 502,994	\$662,598
ENTERPRISES & ESTABLISHMENTS, BY ENTERPRISE & ESTABLISHMENT SIZE					
		Affected Enterprises	Affected Establishments		
Small Business / < 20 Employees		49	43		
Small Business / ≥ 20 Employees		47	57		
TOTAL SMALL		96	100		
Large Business / < 20 Employees			2		
Large Business / ≥ 20 Employees			35		
TOTAL LARGE		8	37		
TOTAL		104	137		
REVENUE & PROFITS, BY ENTERPRISE & ESTABLISHMENT SIZE					
		Revenue	Profits		
Small Business / < 20 Employees		\$ 44,843,217	\$ 2,295,524		
Small Business / ≥ 20 Employees		\$ 804,961,192	\$ 41,205,963		
SUBTOTAL SMALL		\$ 849,804,409	\$ 43,501,488		
Large Business / < 20 Employees		\$ 2,085,731	\$ 106,769		
Large Business / ≥ 20 Employees		\$ 494,274,416	\$ 25,301,907		
SUBTOTAL LARGE		\$ 496,360,147	\$ 25,408,676		

Impacts on Plastic Colorant Producers and Users

BASELINE VALUES		Revenue		Profits		Rate	
		Total	per Business	Total	per Business		
Small Businesses		\$ 849,804,409	\$ 8,852,129	\$ 43,501,488	\$ 453,140	5.12%	
Large Businesses		\$ 496,360,147		\$ 25,408,676		5.12%	
All Businesses		\$ 1,346,164,556		\$ 68,910,164		5.12%	
PEL = 20 ug/m3		Compliance Costs		Profit Rate		Small Establishments	
		Total	per Business	% Revenue	% Profits	After Costs	
Small Businesses		\$ 393,599	\$ 4,100	0.05%	0.90%	5.07%	Total Per Estab. % Revenue % Profit
Large Businesses		\$ 165,853		0.03%	0.65%	5.09%	\$139,832 \$3,107 0.30% 5.82%
All Businesses		\$ 559,452	\$ 5,379	0.04%	0.81%	5.08%	
PEL = 10 ug/m3		Compliance Costs		Profit Rate		Small Establishments	
		Total	per Business	% Revenue	% Profits	After Costs	
Small Businesses		\$ 536,726	\$ 5,591	0.06%	1.23%	5.06%	Total Per Estab. % Revenue % Profit
Large Businesses		\$ 227,376		0.05%	0.89%	5.07%	\$188,442 \$4,188 0.40% 7.84%
All Businesses		\$ 764,102	\$ 7,347	0.06%	1.11%	5.06%	
PEL = 5.0 ug/m3		Compliance Costs		Profit Rate		Small Establishments	
		Total	per Business	% Revenue	% Profits	After Costs	
Small Businesses		\$ 873,088	\$ 9,095	0.10%	2.01%	5.02%	Total Per Estab. % Revenue % Profit
Large Businesses		\$ 387,960		0.08%	1.53%	5.04%	\$273,181 \$6,071 0.58% 11.37%
All Businesses		\$ 1,261,048	\$ 12,125	0.09%	1.83%	5.03%	
PEL = 1.0 ug/m3		Compliance Costs		Profit Rate		Small Establishments	
		Total	per Business	% Revenue	% Profits	After Costs	
Small Businesses		\$ 1,258,518	\$ 13,110	0.15%	2.89%	4.97%	Total Per Estab. % Revenue % Profit
Large Businesses		\$ 550,929		0.11%	2.17%	5.01%	\$409,082 \$9,091 0.87% 17.03%
All Businesses		\$ 1,809,447	\$ 17,399	0.13%	2.63%	4.98%	
PEL = 0.5 ug/m3		Compliance Costs		Profit Rate		Small Establishments	
		Total	per Business	% Revenue	% Profits	After Costs	
Small Businesses		\$ 1,320,260	\$ 13,753	0.16%	3.03%	4.96%	Total Per Estab. % Revenue % Profit
Large Businesses		\$ 579,935		0.12%	2.28%	5.00%	\$425,505 \$9,456 0.91% 17.71%
All Businesses		\$ 1,900,195	\$ 18,271	0.14%	2.76%	4.98%	
PEL = 0.25 ug/m3		Compliance Costs		Profit Rate		Small Establishments	
		Total	per Business	% Revenue	% Profits	After Costs	
Small Businesses		\$ 1,558,730	\$ 16,237	0.18%	3.58%	4.94%	Total Per Estab. % Revenue % Profit
Large Businesses		\$ 710,527		0.14%	2.80%	4.98%	\$454,708 \$10,105 0.97% 18.93%
All Businesses		\$ 2,269,257	\$ 21,820	0.17%	3.29%	4.95%	

* Source of Data on Revenue and Profit Rate: I.R.S., Corporation Source Book of Statistics of Income, 2000